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Report No. 13269

PROJECT COMPLETION REPORT

KOREA

**THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)**

JUNE 30, 1994

**Country Department I
Industry and Energy Operations Division
East Asia and Pacific Regional Office**

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CURRENCY EQUIVALENTS

Currency Unit - Korean Won (W)

Value of US \$1.00*

1987	-	W 823
1988	-	W 731
1989	-	W 671
1990	-	W 708
1991	-	W 733
1992	-	W 781

* Annual Average

FISCAL YEAR

January 1 to December 31

ACRONYMS

CPS	-	Currency Pooling System
FIP	-	Financial Intermediation Project
GOK	-	Government of Korea
ITD	-	Industrial Technology Development
KSE	-	Korea Stock Exchange
KTB	-	Korea Technology Banking Corporation
KTDC	-	Korea Technology Development Corporation
KTIC	-	Korea Technology Investment Corporation
MOST	-	Ministry of Science and Technology
PCR	-	Project Completion Report
R&D	-	Research and Development
SAR	-	Staff Appraisal Report
SCL	-	Single Currency Loan
SME	-	Small and Medium Enterprise

THE WORLD BANK
Washington, D.C. 20433
U.S.A.

Office of Director-General
Operations Evaluation

June 30, 1994

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report on Korea - Third Technology
Development Project (Loan 2913-KO)

Attached is the Project Completion Report on Korea - Third Technology Development Project (Loan 2913-KO) prepared by the East Asia and Pacific Regional Office with Part II contributed by the Borrower.

This project was the third in a series that started in the early 1980s. Prior to the approval of the first loan in 1982, the Bank and the Government of Korea worked closely to set up the Korea Technology Development Corporation (KTDC). In its first ten years of operation, up to the end of 1992, KTDC assisted nearly 3000 projects in their technology needs. Total approvals between 1988 and 1992 amounted to W602 billion (about US\$830 million), with 73% going to in-house research activities, 2% to technology imports, 23% to commercialization, and 2% to purchase of research equipment.

Arguably the Bank's most successful lendings for technology development, these projects formed an integral part of Korea's industrialization effort and were supported by a government that was intent on expanding Korea's technological capability. During the last ten years, the Government gradually reduced its shareholding (now at 15.19%) in KTDC and weaned the corporation away from its subsidized financing. KTDC was transformed, at the end of 1992, from a specialized technology finance company to Korea Technology Banking Corporation (KTBC), a broadly based financial institution with a focus on technology finance. Since then, KTBC has intensified its efforts in raising financial resources by floating bonds in the private capital markets and mobilizing foreign currency resources from the Bank and other sources (KTBC is one of the beneficiaries of the Financial Intermediation Project approved by the Board in December 1993). Over all, the project outcome is rated as satisfactory and its sustainability as likely. The project has had substantial institutional impact.

The PCR is of satisfactory quality. An audit is planned, together with the second technology development project.

Robert Picciotto
by H. Eberhard Köpp

Attachment

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PROJECT COMPLETION REPORT

KOREA

THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)

PREFACE

This is the Project Completion Report (PCR) for the Third Technology Development Project in Korea, for which Loan 2913-KO was approved on February 23, 1988. The US\$50.0 million loan was made to foster technological development of Korean industry through continued support for the Government of Korea's effort to accelerate the development of industrial technology. The loan proceeds were channeled through the then Korea Technology Development Corporation (KTDC) which was converted into the Korea Technology Banking Corporation (KTB) as of July 1, 1992. KTB has assumed all the assets, rights and obligations of KTDC including the Bank loan. The loan was closed on December 31, 1992, with about US\$0.9 million of the loan amount undisbursed and canceled. The last disbursement was made on July 30, 1992. Borrower's repayments to the Bank are current in accordance with the amortization schedule.

The PCR (Preface, Evaluation Summary, Part I and portions of Part III) was prepared by the Industry and Energy Operations Division of Country Department 1, East Asia & Pacific Regional Office. KTB provided Part II and statistical data for Part III of the PCR.

The PCR draws on the Staff Appraisal Report; the Loan and Guarantee Agreements; supervision reports, correspondence between the Bank and KTB, internal Bank memoranda (including draft SAR for the proposed Financial Intermediation Project in Korea); Operations Evaluation Departments' report: Bank Lending for Industrial Technology Development; KTB's audited Financial Statements, and other published reports; and the subproject data provided by KTB.

PROJECT COMPLETION REPORT

KOREA

THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913-KO)

EVALUATION SUMMARY

1. Project Objectives. The overall objective of the project was to continue strengthening and supporting the Korean Technology Banking Corporation (KTB) so that its technology financing continues to play a fundamental role in the structural transformation of Korean industry. Specifically, the project aimed to support KTB in: (a) its efforts to expand risk financing as well as to introduce new instruments, such as leasing for industrial technology development (ITD); (b) its fundamental goals of promoting ITD once KTB was privatized; (c) building its capacity to appraise and supervise more complicated and riskier projects; and (d) its effort to build a subsidiary, Korea Technology Investment Corporation (KTIC), which specialized in "technology" start-ups. The project consisted of: (a) a credit line of \$49.8 million to meet the foreign exchange requirements of ITD activities of industrial firms; and (b) \$0.2 million to finance overseas training for KTB's staff (paras. 3.1 and 3.2).
2. Project Implementation. Overall, the project was very successful, notwithstanding several critical variances between the planned and the actual project implementation. The project was appraised on the assumption that KTB would continue to receive about 35 percent of its resources from the Government of Korea (GOK) at 5.5 percent p.a. and relend them at 10 percent. But in 1990, due to the GOK's decision to reduce policy loans in line with interest rate deregulation, GOK's lending rate was increased to 9 percent, and a ceiling of 1 percent on all policy loans including those for KTB spread was also imposed. Because concessionary funds were no longer available, KTB had to concentrate its operations on conventional loans in order to ensure profitability (paras. 5.1 and 5.2).
3. Project Results. Under the loan, KTB approved 79 subprojects for an aggregate loan amount of \$49.9 million and aggregate project cost of approximately W 82.6 billion. KTB succeeded in channelling almost 67 percent of the Bank funds to small and medium enterprises (SMEs) with financing for R&D being the principal beneficiary (para. 6.1).
4. In 1990, in order to resolve its financial difficulties and diversify its resource base, KTB needed to convert itself into a commercial bank. Although the conversion was denied, an amendment to the KTDC Act, changing KTDC into a banking corporation, was agreed upon. The change expanded KTB's resource mobilization capability by allowing it to accept deposits from official institutions, increasing its bond issuing capacity, permitting issuance of prize bonds and increasing its authorized capital. KTB has thus far made a smooth transition. KTB has become a professional and efficient institution, and its staff is highly competent and sought after by other institutions and industries (paras. 6.2-6.4).

5. Although KTB envisioned a broader role for itself as main lender to the technology-oriented private SMEs, its focus was limited to lending primarily at the commercial stage, when the financial risk is reduced. However, with KTB's conversion, the Ministry of Science and Technology has sought KTB's assistance to raise financing through the issuance of prize bonds to fund high-risk R&D investments for new technology firms. The GOK advanced the implementation of the second stage of interest rate deregulation to November 1, 1993, which will allow KTB to price its loans in relation to risks, thereby allowing it to achieve more profitable operations on its non-equity activities. Though KTB was expected to be fully privatized by the end of 1989, the privatization of the GOK's shareholding was deferred, mainly because of the depressed stock market condition and KTB's inability to qualify for listing on the KSE due to low profitability. KTB mobilized W 406.8 billion during 1988-92 to accomodate significant expansion of its financing activities (paras. 6.5-6.8).

6. Project Sustainability. KTB's financial profitability, which is the main factor to the project's sustainability, is assured under the deregulated industrial financial environment of the 1990s. It is expected that with KTB's transformation, it will meet the challenges facing it in the 1990s. The Bank's close supervision of this transformation is needed (para. 7.1).

7. Bank and Borrower Performance. The successful completion of the project and the experience of KTB confirms the Bank's success at supporting ITD in Korea. The Bank was diligent and cost-effective in completing the project. It was also well aware that KTB's limited success in promoting risk-sharing finance, and the building of KTIC, although specific project objectives, were not worth pursuing as these events were overtaken by the accelerated pace of interest rate deregulation implemented by the GOK. KTB's performance was satisfactory throughout the project period (paras. 8.1, 8.2 and 9.1).

8. Lessons Learned. The important lessons learned from the implementation of this project are: (a) successful ITD depends on a congenial policy framework, right incentives and institutional infrastructure, and flexible and relatively open access to foreign technology; (b) private-sector ownership and the Government's hands-off policy are crucial factors for the smooth functioning of an ITD financial intermediary; (c) for a newly established ITD financing institution, the rapid expansion of risk-sharing financial instruments should be approached deliberately and with caution; (d) with an eye towards eventual total privatization of financial institutions such as KTB, and given the nature of ITD, it is essential that entities be supported with funds at preferential rates of interest for a sufficiently long period to ensure sustainability; and (e) fluctuations of exchange rate and complexities arising from the currency pooling system tend to dissuade private sector subborrowers to use Bank funds (para. 12.1).

PROJECT COMPLETION REPORT

KOREA

THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913-KO)

PART I. PROJECT REVIEW FROM BANK'S PERSPECTIVE

1. Project Identity

Project Name: Third Technology Development Project
Loan No: 2913-KO
RVP Unit: East Asia and Pacific Region
Country: Republic of Korea
Sector: Industry
Subsector: Technology Finance

2. Project Background

2.1 Korea has been among the most successful developing countries in the post war period. Since 1960, real per capita incomes have grown almost sixteen-fold while absolute poverty has been virtually eliminated. Korea's success lies not just in achieving and maintaining very high rates of growth of manufacturing output and exports, but also in diversifying and deepening of its industrial structure into complex activities in relatively short time. Korea extensively utilized technologies from overseas not via the "packaged" transfer of skills, know-how and management represented by foreign direct investment, but by keeping the ownership of industry mainly local, and depending on the ability of its firms to absorb, adapt and improve imported technologies in the form of individual experts, equipment, turnkey projects, licenses and the free flow of information arising from export activity. The impressive record of industrial technology development (ITD) is directly traceable to the range of selective and functional interventions undertaken by the Government of Korea (GOK) since the early stages of industrialization.

2.2 Towards the end of 1970s, a dialogue was opened between the Bank and the GOK regarding technology policy and institutional issues. The Bank supported Korea's approach and the first loan financing ITD was approved in 1979. In 1982 the Bank approved the first Technology Development Project (Loan 2112-KO), and under this loan it took the strategic decision of supporting the setting up of a new institution with the primary objective of remedying market failures in the early (pre-market) stages of financing technological effort in Korean industry. This project was followed by the second loan in 1984 (KTDC II, Loan 2473-KO) and the third loan in 1988 (KTDC III, Loan 2913-KO). Each project involved lending \$50.0 million to the newly established institution, Korean Technology Banking Corporation (KTB, formerly the Korean Technology Development Corporation, KTDC), a joint private-public sector financial intermediary. KTB is a participating financial intermediary under the Financial Intermediation Project (FIP) approved by the Board on December 23, 1993. The FIP was the vehicle for the Bank for addressing financial sector policies in Korea (para 2.3). Under the FIP, the Bank will assist KTB in its transformation from a specialized technology finance

company into a more broadly based financial institution with a focus on technology finance. (See Table 1 for details.)

2.3 Historically, Korea's financial sector has been used as an instrument of industrial policy through the use of policy loans and controlled interest rate. However, such a policy imposes significant efficiency costs in a rapidly growing and more complex Korean economy. Recognizing the need for reforms, the GOK in April 1992 requested Bank's assistance in its preparation of a blueprint for the liberalization of the financial sector and market opening. In response, the Bank carried out a comprehensive Financial Sector Study^{1/} which was completed in December 1992 and has been a key input in formulating the blueprint for financial sector reform program announced in June/July 1993.

2.4 Specific areas for reforms envisaged under the GOK's program are: (a) interest rate liberalization; (b) autonomy of management of banks; (c) reform of policy loans; (d) management of monetary policy; (e) bank supervision; and (f) capital account liberalization. Implementation of this program started in July 1993 and the second phase of the reform was implemented on schedule in November 1993. The reform program adopted by the GOK is substantially in line with the recommendations made in the Study. Over 80 percent of lending rates and about 60 percent of deposit rates in Korea are now market determined. Korea's financial sector reform program is very well received by the international financial community.

3. Project Objectives and Description

3.1 The overall objective of the project was to continue strengthening and supporting KTB so that its technology financing continues to play a fundamental role in the structural transformation of Korean industry. Specifically, the project aimed to support KTB in:

- (a) its efforts to expand risk financing as well as to introduce new instruments, such as leasing for ITD;
- (b) its fundamental goals of promoting ITD once KTB was privatized;
- (c) building its capacity to appraise and supervise more complicated and riskier projects; and
- (d) its effort to build a subsidiary, Korea Technology Investment Corporation (KTIC), which specialized in "technology" start-ups.

3.2 The project consisted of two components: (a) a credit line of \$49.8 million to meet the estimated foreign exchange requirements of ITD activities of industrial firms financed by KTB through a variety of financial instruments during 1988-91; and (b) \$0.2 million to finance overseas training and consulting services for KTB's staff and institutional development.

^{1/} Korea Financial Sector Study (Report No 11373-KO), July 15, 1993.

4. Project Design and Organization

4.1 The project had a clear conceptual foundation; it was the third project in a series of lending operations to KTB for ITD. The project design was simple and well-balanced and the project required minimal preparation and modest supervision. The roles and responsibilities of the institutions and agencies responsible for the project were clearly defined and understood. But the success of these three ITD projects owes as much to the broader determinants of Korean industrial success as to the design of the projects themselves. The project supported KTB in: (a) introducing new instruments (such as leasing) for financing ITD; (b) building KTB's capacity to appraise and supervise more complex and riskier subprojects; and (c) expanding the subsidiary KTIC to invest in technology start-ups. However, the project objectives, especially regarding expansion of risk financing and promotion of technology start-ups, were quite ambitious. The rationale for requiring KTB to expand into riskier ventures with a Bank loan, repayments of which were made complicated by the currency pooling system (CPS), instead of equity finance which is the conventional instrument for venture capital, was inappropriate. Furthermore, the project was implemented at a time when the Bank was encouraging liberalization of interest rates which influenced GOK's decision to reduce the volume of subsidized credits to all financial intermediaries including KTB.

4.2 KTB was established under the Korea Technology Development Corporation Act promulgated in December 1980. The Bank had provided extensive input, through its dialogue with the GOK, in the formulation of the Act and its associated Presidential Enforcement Decree that was issued in April 1981. Based on its experience in other countries, the Bank insisted: (a) that the legal framework should enable KTB to operate in an autonomous manner with the efficiency of a private company; (b) for a strong and independent management; and (c) on the ability and means to attract and retain staff of high caliber and entrepreneurship. Given the risky nature of the operation, the Bank sought commitment from GOK that it will provide KTB with necessary financial assistance during its formative years.

5. Project Implementation

5.1 Overall, the project was very successful, notwithstanding several critical variances between the planned and the actual project implementation. The project was appraised on the assumption that KTB would continue to receive about 35 percent of its resources from the GOK at (highly subsidized) 5.5 percent p.a. interest rate, and relend them at 10 percent p.a., earning a spread of 4.5 percent p.a. on these government funds. But in 1990, due to the GOK's decision to reduce policy loans in line with interest deregulation, the GOK's lending rate was increased to 9 percent, and a ceiling of 1 percent on all policy loans including those for KTB spread was also imposed at the same time. Furthermore, KTB's loans were also to be made available to small and medium enterprises (SMEs), and interest rates on its debentures were also increased. While its administrative expenses continued to be reasonable, KTB's overall spread thus became negative and its net profit would have been negative had it not been for realized capital gains from its equity investments in all the three years (1990, 1991 and 1992).

5.2 Because concessionary funds were no longer available, KTB had to concentrate its operations on conventional loans in order to ensure the annual profitability required for attracting private equity investment. Hence, KTB could not sustain providing riskier conditional loans and equity investments. Thus, the variances were primarily caused by external factors on which KTB and the Bank had virtually no control, and in retrospect, from a broader and long-term perspective they were conducive to Korea's ITD.

5.3 KTB was able to obtain funds for the technical assistance component at more favorable terms from other sources, which provided both overseas and domestic training to its staff as detailed in Table 4.3. As a result, the amount of \$200,000 was reallocated for further subproject financing.

5.4 The project was completed and the loan was closed as planned, with the cancellation of an undisbursed amount of \$917,395. Both actual commitments and disbursements were generally ahead of the planned schedule, notwithstanding the difficulties caused by the Bank's CPS, which complicated the estimation of the foreign exchange risk that had to be passed onto subborrowers. (See Tables 2 and 3.) KTB did a commendable job of convincing subborrowers to use the Bank funds despite complexities caused by the CPS.^{2/}

6. Project Results

6.1 Direct Impact of the Term Credit. Under the loan, KTB approved 79 subprojects for an aggregate loan amount of \$49.9 million and aggregate project cost of approximately W 82.6 billion (W 39.3 billion in local currency plus \$61.9 million in foreign currency). As under the KTDC II project, this loan financed about 42 percent of the aggregate project cost. Of the final disbursed amount of \$49.1 million, \$16.5 million went to 16 large enterprises and \$32.5 million to 63 small and medium enterprises (SMEs). Thus, KTB succeeded in channelling almost 67 percent of the Bank funds to SMEs, as against only 40 percent in the KTDC II project. The Bank approved 21 subloans amounting to \$30 million, which were above the free limit of \$700,000. The loan was given to 14 machinery/metal subprojects (\$11.7 million), 36 electronics/electrical subprojects (\$17.9 million), and 29 chemical/other subprojects (\$19.5 million). Both in terms of the number of subprojects as well as loan amounts, financing for R&D was the principal beneficiary (\$25.9 million), followed by improvement of manufacturing process (\$10.1 million) and technology import (\$9.4 million). Almost 65 percent of the loan amount was used by the 54 subprojects in only two regions: Seoul and Kyung-Ki. KTB used the entire loan for conventional lending, although it was expected to use part of the Bank loan for technology start-ups and riskier subprojects. This limited use of loan proceeds was due to KTB's sudden lack of access to concessionary funds (making riskier projects unattractive) prompted by the GOK's policy of financial deregulation, and complexities from the Bank's CPS. (See Tables 4.1 and 4.2 for details.)

^{2/} In January 1993, the Bank introduced Single Currency Loans (SCL), designed to reduce or improve (sub)borrowers' capacity to manage currency risks; the recently approved FIP loan will allow disbursements and repayments in a single currency (i.e. US dollars).

6.2 KTDC's Transformation into KTB. KTB was faced with unusual financial hardships and experienced difficulties in making scheduled repayments to its creditors in 1990. In order to resolve its financial difficulties and diversify its resource base, KTB needed to convert itself into a commercial bank. Although the Ministry of Finance denied the conversion, an amendment to the KTDC Act, changing KTDC into a banking corporation (KTB) was agreed upon. The change expanded KTB's resource mobilization capability by allowing it to accept deposits from official institutions, increasing its bond issuing capacity, permitting issuance of prize bonds, and increasing its authorized capital. KTB has thus far made a smooth transition.

6.3 Institutional Development. KTB has become a professional and efficient institution, and its staff is highly competent and sought after by other institutions and industries. KTB's success at institutional development has been exemplary; it emerged as a leading financial intermediary specialized in innovative technology financing. KTB, continued to invest in staff development and modified periodically its organization to meet the needs of a rapidly changing industrial and venture capital environment.

6.4 KTB has developed into an important enterprise for developing technology, especially in the small and medium industry sector and has kept its failed ventures and levels of arrears at a low rate. It has also become an important adviser to the GOK in its efforts to promote cooperative research between public research institutions and industrial firms. KTB's success at institution-building is due to its commitment to employing highly qualified staff. At present, it has 67 professional staff, of which 21 are engineers, 6 lawyers, and 40 financial analysts or economists. KTB assigns high priority to staff development and has implemented an extensive program of domestic and overseas training in addition to its three-year job rotation. KTB's project appraisal capability is very comprehensive and regarded as more rigorous than that of commercial banks, as the evaluation includes technical feasibility, marketability, financial viability, technical/managerial capability, economic and environment impact, and sponsor reliability.

6.5 Broadening of Operations. Although KTB envisioned a broader role for itself, as main lender to the technology-oriented private SMEs, it tended to focus its activities on lending primarily at the commercial stage, when the financial risk is reduced. KTB's role was limited by its concern for profitability, and because it needed to match its product with its source of finance, which was mostly commercial borrowings. However, with KTB's conversion, the Ministry of Science and Technology (MOST) has sought KTB's assistance to raise financing through the issuance of prize bonds to fund high-risk R&D investments for new technology firms. A Science and Technology Promotion Fund was therefore formed, and KTB is expected to invest this money on a managed-fee basis (without any credit risk to KTB).

6.6 KTB intends to continue to provide financing to its existing clientele in the post-commercialization growth phase. It is also determined to expand its lending activities through an increase in loan volume and quantity of larger-sized loans. The GOK advanced the implementation of the second stage of interest rate deregulation to November 1, 1993, which will allow KTB to price its loans in relation to risks, thereby allowing it to achieve more profitable operations on its non-equity activities. In response to the various needs of start-up and

on-going businesses, KTB has also started its management consulting services in 1990 advising on public stock offerings, business mergers and acquisitions, and planning of corporate mid- and long-term strategies.

6.7 Ownership and Privatization. Though KTB was expected to be fully privatized by the end of 1989, the GOK (including KTB) still owns 22.3 percent of KTB's shareholdings at the end of 1992 (Table 6). The privatization of the GOK's shareholding was deferred, mainly because of the depressed stock market condition and KTB's inability to qualify for listing on the KSE due to low profitability (its return remained below 10 percent until 1988). With the recovery of the KSE and improved profitability of KTB (its return has exceeded 10 percent since 1989 and is expected to exceed 12.75 percent in 1993 and thereafter), it intends to reduce its public sector ownership progressively down to about 7-8 percent. MOST, who intends to remain as the government representative, has indicated a desire to retain a 7-8 percent minimum shareholding in KTB.

6.8 Resource Mobilization. KTB mobilized W 406.8 billion during 1988-92 to accommodate significant expansion of its financing activities: W 19 billion as equity, W 42 billion as loan from the GOK, W 261 billion as debentures in private capital market, and \$80 million in foreign currency. KTB expects to continue selling bonds to the Ministry of Communications at a slightly below market rate and raise equity finance through the KSE. The listing requirement of KSE is a minimum of 10 percent return on share capital for two consecutive years. Although KTB has satisfied this initial requirement, it still needs to achieve the other requirement of a 12.75 percent return by 1993 for KSE listing by 1994. Both the Bank and KTB are confident of accomplishing this goal.

6.9 Financial Performance. KTBC is a financially sound and profitable institution. During 1988-92, KTBC has been consistently profitable, although the returns on average equity in 1991 and 1992 at 8.4% and 8.7% were modest, when compared with the rates available on one year deposit or debt instruments. Prior to 1989, KTBC received its funding from the GOK at 5.5%, and was permitted a 4.5% spread. In 1990, the GOK increased the cost to 9% and limited KTBC to a 1% spread. Subsequently, KTBC had to raise funds by issuing debentures on the domestic capital market which put further pressure on KTBC maturities, spreads and profitability. Having to raise funds from commercial sources and investing in controlled spreads, has resulted in very modest levels of profitability. Despite tight controls on staff and administrative expenses, KTBC has been able to achieve profitability in the last three years only through a realization of capital gains from its equity portfolio. As required, KTBC has maintained a long-term debt-equity ratio below 5:1.

7. Project Sustainability

7.1 KTB's financial profitability, which is the main factor to the project's sustainability, is assured under the deregulated industrial and financial environment of the 1990s (para 2.3). It is expected that with the transformation of KTB from an industrial technology financing to a banking corporation, KTB is well prepared to meet the challenges facing it in the 1990s. In the PCR for the KTDC II Project, it was stated that KTB's future prospects were not clear on two main points: (a) whether KTB could develop a sustainable strategy for resource mobilization; and (b) how well KTB could compete with other institutions in a progressively liberalized financial sector environment.

Crucial to this transformation is the financial results of 1993 when a return of 12.75 percent on share capital must be achieved to allow a KSE listing in 1994. Both the Bank and KTB are confident of meeting this target. In 1994, KTB's financial performance is expected to improve further with the profitability being achieved without reliance on capital gains from equity portfolio. From 1994 onwards, profits are expected to build as the portfolio and lending margins grow. KTB expects to build its equity base through new capital issues on the KSE at progressively higher premiums as its profitability grows. However, the Bank's close supervision of KTB's transformation is needed.

8. Bank Performance

8.1 The successful completion of the project and the experience of KTB confirms the Bank's success at supporting ITD in Korea. This project, including the three before it, met the critical need for ITD financing in Korea over the decade, and overcame deficiencies in the capital market that they were supposed to alleviate. Other issues of skills, incentives, institutions and so on, were being addressed by the GOK under other projects supported by the Bank. Moreover, the project was aimed at largely functional rather than selective government interventions. The SAR had explicitly stated that continued Bank support to KTB was in line with the Bank recommendations to move Korean industrial policy away from one in which the GOK takes the lead in "picking winners" towards one which emphasizes functional interventions in such areas as ITD and development of SMEs and venture capital, areas where market imperfections and externalities existed. More importantly, having gained maturity as a specialized technology finance company, albeit with continued Bank support, KTB is now transforming itself into a more broad based financial institution with a focus on technology finance --an area of priority under the Five Year Plan for the New Economy, 1993-97.

8.2 The Bank was diligent and cost-effective in completing the project (Table 8.1 and 8.2). It had accelerated the early stages of the project cycle, and combined the missions with supervision of the KTDC I and KTDC II projects. Bank's supervision of the project was generally adequate; the preparation and preappraisal missions for the proposed FIP were also de-facto supervision missions for this project, as KTB was one of four beneficiary institutions under the project. Specifically, the Bank made important contribution towards finalization of the KTB Act, Presidential Decree and Articles of Incorporation. The Bank was also well aware that KTB's limited success in promoting risk-sharing finance, and the building of KTIC which specialized in technology start-up, although specific project objectives, were not worth pursuing as these events were overtaken by the accelerated pace of interest rate deregulation implemented by the GOK.

9. Borrower Performance

9.1 KTB's performance was satisfactory throughout the project period. The collection ratio for the subloans was satisfactory, ranging between 97.6 percent (1991) and 99.6 percent (1989) during these five years, with total arrears as percentage of principal outstanding ranging only between 0.13 and 0.19. At the end of 1992, KTB had no conventional loans in arrears over six months and only three percent were in arrears under six months, affecting only 1.2 percent of the total principal outstanding (W 210.5 billion). KTB's venture investment

partnership program and KTIC's venture financing services for companies at their start-up stages are further expected to strengthen KTB.

10. Project Relationship

10.1 Both KTB and the GOK maintained very amicable and businesslike working relationship with the Bank during the entire project cycle. KTB maintains good relationship with relevant government agencies and subborrowers. KTB, in particular, works closely with new enterprises, providing help in planning their financial strategies and essential funds. KTB has been responsive to Bank's queries and concerns as well. It had furnished its part of the PCR in a satisfactory and timely manner.

11. Project Documentation and Data

11.1 The Loan and Guarantee Agreements were appropriate for achieving the key project objectives. The SAR provided a useful framework for the Bank and KTB during the project implementation stage. The documents and data required for Bank's consent to its conversion and for preparation of the PCR were by and large available or provided by KTB expeditiously. The nonavailability of the documents concerning the project preparatory stage (e.g., Executive Project Summary, Issues Paper, Decision Memorandum) reflects the 1987 Bank reorganization.

12. Lessons Learned

12.1 The important lessons learned from the implementation of this project echoes KTB's project experience and the findings of the Operations Evaluation Department's Report on ITD (Report No. 12138, June 1993), which reviewed the three successive loans to KTB for ITD. They are:

- (a) Successful ITD depends on a congenial policy framework, right incentives and institutional infrastructure, and flexible and relatively open access to foreign technology;
- (b) Private-sector ownership or majority participation and the Government's hands-off policy are crucial factors for the smooth functioning of an ITD financial intermediary, allowing the entity speed of action and a quick response to the customers' changing needs and environment;
- (c) For a newly established ITD financing institution, the rapid expansion of risk-sharing financial instruments should be approached deliberately and with caution. It maybe considered only as a long-term proposition, as the successful operation of such instruments requires a longer gestation period, more experience and capabilities with project appraisal and supervision than for conventional loans, and is also subject to constraints existing in the country (such as the lack of a viable over-the-counter market in securities);
- (d) With an eye towards eventual total privatization of financial institutions such as KTB, and given the nature of ITD, it is essential that entities be supported with funds at preferential rates of interest for a sufficiently long period to ensure their

sustainability. In the process, and as the institution develops and matures, they should be forced to support themselves through their own resource mobilization; and

- (e) Fluctuations of exchange rate and complexities arising from the CPS tend to dissuade private sector subborrowers to use the Bank funds.

PROJECT COMPLETION REPORT

KOREA

THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)

PART II. PROJECT REVIEW FROM BORROWER'S PERSPECTIVE

1. KTB'S ROLE

1.1 The principal role of KTB is to promote and accelerate the technological development of Korean industries and to foster local entrepreneurship among industries in Korea.

1.2 To fulfill this role, KTB performs its functions through the following instruments:

(a) Long-term R&D Financing: up to 10 years repayment period including a 3-year grace period.

(b) Venture Capital (or risks-sharing) Financing: KTB uses venture capital financing as a means of technology financing. This includes equity investment, conditional lending, convertible bonds and bonds with warrants.

(c) Investment Partnership Management: This is a venture capital financing program to make investment in new or existing small and medium-sized industrial companies in the form of equity investment, convertible bonds or bonds with warrants.

(d) Leasing and Factoring: These financing operations were added for flexible financing and add-on financing to the SMI clients of KTB. KTB's leasing service is designed to provide advanced equipment to cope with the changes in technology and to timely supply facilities for business growth.

(e) Management Consulting Services: In response to the various needs of start-up and on-going businesses, KTB gives advice on public stock offerings, business mergers and acquisitions, and planning of corporate mid and long-term strategies. KTB also supplies up-to-date information related to marketing technology, and other areas.

(f) Center for R&D Commercialization : Drawing upon its experience and the accumulated know-how, KTB has established the Center for R&D Commercialization to expedite commercialization of R&D results and actively support transfer of technology to and from foreign countries. Through the Center, KTB has exerted its utmost efforts to encourage R&D activities in industries and, to foster, for promising venture businesses, cooperative relations with overseas companies seeking business and technological ties with Korean companies.

(g) Comprehensive Training Institute & Exhibition Hall : KTB operates a comprehensive training institute to develop competent manpower for its portfolio companies and small-and medium-sized businesses. The modern structure, equipped with various state-of-the-art training facilities, has comfortable accommodations for about 120 people, and a lecture hall with a seating capacity for 200 people. The institute develops and provides specialized training programs as well. To assist sales promotion of new technology products manufactured by KTB-financed businesses KTB has opened a showroom at the Federation of Korean Industries building in Seoul.

2. LOAN OBJECTIVES

1.3 The main objective of the loan was to facilitate the structural transformation of Korean industry through acceleration of industrial technology development. Specifically, the project was to : (a) assist KTB's institutional development through technical assistance, staff development, and training ; (b) assist KTB's catalytic role in technology innovation ; (c) establish the foundation for a long-term resource base for KTB ; (d) expand KTB's operations involving risk-sharing financial instruments ; and (e) expand KTB's support to SMI.

1.4 The Loan consists of :

Part A : A line of credit to help cover costs of industry-sponsored R&D subprojects.

Part B : Institutional development of KTB, comprising (i) consulting services to support the operations of KTB and training of KTB staff, both to further deepen their capacity to identify, appraise, and supervise R&D projects and to enable KTB to carry out surveys of the technological needs of Korean industries ; and (ii) purchase of training materials for KTB staff.

II. KTB PERFORMANCE

1. INSTITUTIONAL PERFORMANCE

Legal Framework and Ownership

2.1 KTDC was established under the KTDC Act in 1981, and it transformed itself into KTB under the KTB ACT promulgated on December 31, 1991 and the associated Enforcement Decree issued on June 30, 1992 in order to expand and improve its services through diversifying its financial resources and reinforcing its structure. This special KTB Act and the associated Presidential Decree enable KTB :

(a) to operate in an autonomous manner with the efficiency of a private company,

(b) to have a strong and independent management, and

(c) to have the ability and means to attract and retain staff of high caliber and entrepreneurship. All these factors are most critical to the success of an operation of KTB. Public interest in KTB, by way of Government financial support, such as equity contributions, loans, loan guarantees, etc. is safeguarded principally through Government representation on KTB's Board of Directors, exercising the usual rights of a shareholder. To prevent KTB from being dominated by any one private shareholder, the KTB Act stipulates that the ownership of any shareholder, with the exception of the Government and international development financing institutions, be limited to no more than 7% of the total shares issued, and that in case any such shareholder's shares should exceed 7% of the total shares issued, his voting rights would be limited to 7%.

2.2 The ownership of KTB has undergone gradual changes since 1988. With the acceptance of Asian Development Bank in 1988 and German Finance Company for Investments in Developing Countries(DEG) in 1989 as a shareholder, the ownership structure of KTB at the end of 1992 stood as shown in Annex 13.

Operating Policies

2.4 KTB's Operating Manual provides broad guidelines for its operations, including the scope of loan and investment activities, criteria for investment decisions, diversification of assets, promotion of SMI, relations with clients, and generation of profits. Combined with other operational policies (such as limiting KTB's equity investments in any single enterprise to not more than 10% of its paid-in capital and reserves), there are adequate safeguards to protect KTB from an undue concentration of its assets.

2.5 Details of the terms and conditions of KTB's loan and equity investment and procedures are given in the Statement of Investment and Operational Policies. KTB has promoted and financed the following types of projects under the Bank loan :

- (a) Loans for in-house R&D costs and/or for the cost of contracts for technological development with external research organizations ;
- (b) Investments and loans for initial efforts for the commercialization of the results of R&D ;
- (c) Loans for technology import or for the adaptation and improvement of imported technology ;
- (d) Loans for engineering costs associated with the construction of industrial facilities ;
- (e) Technical advisory services to industrial enterprises with respect to the business activities referred to in (a) through (b) above and/or technical feasibility surveys for other R&D facilities ; and
- (f) Use of foreign specialists and technical advisers, and training of R&D personnel.

Project Supervision

2.6 KTB has established supervision systems and procedures which are more efficient and effective than those established before the inception of the Bank Loan. Projects encountering financial or operational difficulties are closely monitored by the responsible department. The systems with which ongoing projects are classified by the degree of need for supervision have been developed and being implemented in order to improve performance in this regard.

Korea Technology Investment Corporation (KTIC)

2.7 KTIC was established in November 1986 as a subsidiary of KTB to operate in accordance with the Small and Medium Enterprise Inauguration Assistance Act. As stipulated by the Act, KTIC specializes in financing newly established SMI through equity investments and partnership venture fund operations. KTB is benefited from KTIC through ; (i) offering subsequent financing in various forms to the SMI clients of KTIC, and (ii) accumulating know-how on venture capital operations (equity investments and partnership venture fund).

KTB Consultants, Inc.

2.8 KTB Consultants, Inc., a comprehensive management consulting subsidiary, was incorporated in 1990 to meet the industries' need for comprehensive consulting services, thus contributing towards their sound growth. It provides first-rate consulting services in Korea, including mergers & acquisitions arrangements, management consulting advices, and training services.

Organization, Management and Staff

2.9 The responsibility for the policy and general direction of KTB's business rests with the Board of Directors headed by a Chairman, who is the Chief Executive Officer of one of the large industry groups. The

President, who reports directly to the Board, is responsible for KTB's overall operations. The Board has fully delegated authority to approve individual loans and investments to the Executive Directors' Committee consisting of all directors that are managers of KTB. Such delegation enables KTB to respond quickly to private industry's changing R&D needs.

2.10 KTB's organization has changed and expanded periodically to meet the needs of the rapidly changing industrial and venture capital environment. KTB now has ten departments aside from five branches in Pusan, Kwang-Ju, Tae-Gu, Tae-Jon, An-San and one representative office in the U.S.A. The three Project Finance Departments, which are divided by major industrial sectors (machinery and metal, electric and electronics, and chemical and others), are responsible for project identification and appraisal and supervision. The Fund Management Department is responsible for fund raising and investment of liquidity assets ; the Prize Bond & Fund Department for issuance and management of prize bonds, management of 'Science and Technology Promotion Fund' which is entrusted to KTB by the Government ; the International Business Department for international businesses and CRDC ; the Planning Department for planning and budgeting ; the Administration Department for personnel and other support services ; the Business Department for the construction of KTB office building and the management of the Training Institute ; and the Leasing Department for leasing businesses.

2.11 At present, KTB has 67 professional staff of which 21 are engineers, 6 lawyers, and 40 financial analysts or economists.

Staff Development and Training

2.12 In consideration of KTB's major role in financing technology development, staff development has special significance. Despite its recruitment of qualified staff with some experience, the absence of persons with experience in technology financing or venture capital in Korea caused KTB to immediately develop an extensive program of domestic and overseas training in addition to periodic job rotation with 3 year time period.

2.13 From 1988-1992, 18 professionals participated in overseas training (for two weeks to one year). The programs have covered such areas as managing technological innovation, financing R&D, venture capital operations and small business management. KTB's domestic training mainly consists of : (a) Master of Business Administration programs at graduate schools ; (b) on-the-job training in KTB and KTB's portfolio companies ; (c) courses at a training center for bankers in Korea ; (d) two or three-day in-house training.

2. OPERATING PERFORMANCE

Overall Operations

2.14 KTB approved 1,878 projects between 1988 and 1992, providing seed money which had a substantial multipliers effect on industries' investments in R&D. Total approval amounted to ₩602.0 billion during the period.

2.15 KTB supports projects at all stages of the technology development process from R&D start-up to commercialization stage, 73% going to in-house research activities, 2% to technology imports, 23% to commercialization, and 2% to purchase of research equipment. The distribution among industries had been made with the proportion of 42% for machinery/metal sector, 29% for electronics/electrical sector, 29% for chemical/others sector.

Financial Support to SMI

2.16 KTB supports all industries including large-scale enterprises, but special emphasis is placed on small and medium-sized industrial companies. The task of KTB's preferential treatment to SMI was difficult to accomplish during the initial period of its business operations, given the conditions of technological development capability and early awareness of technology of the large-scale enterprises in the industrial sector. Most of the SMI

had limited in-house technological capability for developing R&D projects, limited international exposure to identify sources of technologies or ideas for products/processes, and financial constraints. KTB's support to SMI increased from less than 30% in 1981/82 to over 97% in 1992 in terms of total amount of financing. The results are even more highlighted in terms of the number of projects ; 347 out of 352 projects financed in 1989 were SMI's projects.

Venture Capital Financing Instruments

2.17 KTB employs various types of financial instruments which is one of the factor that differentiates KTB from other financial institutions. KTB's commitment by category of risk-sharing financial instruments including equity investments, convertible bonds, conditional loans amounts to ~~¥~~74.8 billion, or 12.4% of total approval during the period 1988-1992.

Relationship between KTB and its clients

2.18 KTB maintains a very close and cooperative relationship with its clients. KTB typically receives preliminary inquiries from entrepreneurs, researchers, and inventors with project ideas. A project idea at that stage is, sometimes, neither well-conceived nor sufficiently developed to constitute a bankable project. Through interviews with potential applicants, KTB staff also provide advice and suggestions based on their own expertise. Once a formal application is received, the technically-trained and business-trained project appraisal officers work together in evaluating the applications. In case that the project sponsor is in critical need of KTB's managerial support, KTB helps the investee company by dispatching its staff to the company for a certain period time upon the investee company's request. A notable feature of KTB's assistance to its portfolio companies is that KTB's wide network of industry information and professional financial and managerial expertise may be taken advantage of. Based on its expertise and wide network, KTB provides a comprehensive support for the growth of its portfolio companies, which encompasses managerial and financial consultation, even including the

groundwork for going public.

2.19 As the number of KTB's client companies reached approximately 500 industrial companies, KTB has been able to act as an intermediary among them. Activities include complementary sourcing of components and parts and assisting in marketing aspects, providing opportunities for the exchange of information on technology and business trends.

Resource Mobilization

2.20 KTB mobilized ₩406.8 billion during the period 1988-1992 to accomodate the significant expansion of its financing activities. KTB successfully mobilized resources in the amount of ₩19.1 billion as equity, borrowed from the government ₩42 billion and floated Technology Development Deventures in the private capital market totalling ₩260.9 billion during the same period. For foreign currency resources, KTB mobilized US\$80.4 million including the Bank's loan of US\$40.9 million.

Financial Performance

2.21 Annex 9 summarizes KTB's actual overall financial performance. In 1992, it accomplished a remarkable net profit of ₩6.6 billion without the government's interest rate differential subsidies.

3. Accomplishments

2.22 KTB is now widely considered as a leading technology financing institution in Korea and many countries are trying to establish a similar organization. Venture financing and R&D financing activities draw wide attention and the promotion of these financing activities constitutes an important element of Korea's industrial technology development drive. In addition to KTB, three other venture financing corporations namely, Korea Technology Financing Corporation(KTFC), Korea Development Investment Corporation(KDIC), and Korea Technology Advancement Corporation(KTAC) have

been encouraged under the New Technology Financing Support Act to promote venture capital business. Furthermore, 54 other star-up investment companies in the nature of KTIC have been created up to now.

2.23 KTB's activities in the venture capital field have attracted a number of new private venture capital companies which benefitted either directly or indirectly from KTB's past achievements and contributions in the field of R&D financing. In a sense, KTB has been a pioneer in showing the way and nurturing the climate in the technology financing area. Also, it has been an important institution responsible for the realization of Korea's objectives in the field of science and technology.

2.24 Regarding its operational aspect, KTB, by and large took a prudent investment strategy in its initial stage with emphasis on nurturing the technology development climate in Korea's industries and slowly injected the venture capital concept for the sound management and financial viability of technology ventures. After KTB earned a well-established position, it shifted to a more aggressive financing strategy by employing more risk-sharing instruments.

III. THE BANK'S CONTRIBUTION TO KTB

3.1 From 1988 to 1992, KTB approved 1,878 projects amounting to ₩602.5 billion, out of which ₩80.5 billion was in foreign currency. For foreign currency resources, KTB relied mainly on the Bank Loans.

3.2 The approval of the Bank Loan to KTB encouraged both the government and the private sector shareholders to accelerate their subscriptions to the successive capital increase.

3.3 The Bank suggested to KTB to strengthen its supervision/follow-up functions of venture financing to increase the weight of venture financing and to enhance its profitability. The suggestion helped KTB to develop more specific and efficient supervision/follow-up systems.

3.4 As a result of the above mentioned, the Bank's contribution to KTB, KTB is now maintaining its leading position in the field of R&D financing and venture capital business in Korea in spite of emergence of many domestic companies in the same nature of business. In addition, the Bank's and KTB's experience gained during the evolution and implementation of the project would be useful in assisting other countries planning to establish R&D financing institutions.

IV. LESSONS LEARNED FROM THE PROJECT

Several important lessons have emerged from the evolution and implementation of the project.

4.1 The role of the government and its strategies are crucial to the success of this project. To date, the government has initiated an multi-facited array of policies and administrative measures to facilitate the development of industrial technology. Policies and administrative measures have been to : (a) encourage R&D investments by industry as much as possible ; (b) liberalize foreign technology imports : (c) increase the linkage between industry and non-profit research institutes : and (d) create suitable financing mechanisms for R&D activities and venture capital business (including KTB), particularly for SMI. Furthermore, to complement these measures, the government has increased education sector investments to improve the quality as well as the quantity of technical manpower.

4.2 The government is the second largest shareholder of KTB, who is in a most influential position. But the government allows KTB to operate in an autonomous manner and gives it the ability and means to attract and retain human resources of high caliber. This is a key to the project's success because KTB is required to quickly respond to its customer's changing needs and environment.

4.3 There has been an increasing number of would-be entrepreneurs who are aspiring to begin businesses and private innovators who are dreaming of commercializing their R&D projects. Existing small and medium-sized companies are continuously trying to improve their technology capability to cope with severer competition in the local and international market. Their ardent wishes and efforts are decisive to the project's success. But, it is true that some of Korean entrepreneurs are concerned with an erosion of potential profits and dilution of their ownership.

PART III STATISTICAL INFORMATION

**THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)**

Table 1: RELATED BANK LOANS

Loan No.	Title	Purpose	Approval	Status	Comments
1676	Electronics Technology	Strengthen capacity of KIET for developing semiconductor technologies, R&D, etc.	1979	Closed	
1800	Education Sector	Upgrade technical and engineering education in colleges	1980	Closed	
2112	(First) Technology Development	Support institutional development of KTDC (KTB)	1982	Closed	
2215	Small & Medium Machinery Industry	Finance SMMI subprojects and TA & Training to SMIPC	1982	Closed	Loan to IBK, CNB, KLB and SMIPC
2427	Science & Technology	Improve quality of education in science and engineering	1984	Closed	
2473	Second Technology Development	Continue institutional support of KTDC (KTB)	1984	Closed	
2515	Small & Medium Industry	Finance SMI subprojects and TA to SMIPC	1985	Closed	Loan to CNB and SMIPC
3037	(First) Technology Advancement	Strengthen industrial development in SMIs by enhancing R&D education	1989	Closed	Loan to KIT, ITC and KERI
3202	Second Technology Advancement	Improve R&D capacities of science, engineering, biotechnology, etc.	1990	Supervision	Loan to KAIST, GERI, KIER, KIGMM, and KRISS
3203	Universities of Science & Technology Research	Assist selected universities in basic research programs in science and technology	1990	Supervision	Loan to KAIST, GERI, KRISS and KIER
3315	Third Technology Advancement	Reinforce GOK's priority for industrial development technology	1991	Supervision	Loan to KIST, KBSC, and NIRI

SMMI - Small & Medium Machinery Industry
KIET - Korea Institute of Electronics Technology
IBK - Industrial Bank of Korea
CNB - Citizens National Bank
KLB - Korea Long Term Credit Bank
SMIPC - Small & Medium Industry Promotion Corporation
KIT - Korea Institute of Technology
ITC - Industrial Technology Center
KERI - Korea Electrotechnology Research Institute

KAIST - Korea Advanced Institute of Science and Technology
GERI - Genetic Engineering Research Institute
KRISS - Korea Research Institute of Standards and Science
KIER - Korea Institute of Energy and Resources
KIGMM - Korea Institute of Geology, Mining and Materials
KIST - Korea Institute of Science & Technology
KBSC - Korea Basic Science Center
NIRI - National Industrial Research Institute

**THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)**

Table 2: PROJECT TIMETABLE

Item	Date Planned	Date Actual
Draft Initiating Project Brief	November 1985	November 1985
Identification Mission	November 1985	Nov/Dec 1985
Preparation Mission	May/June 1986	November 1986
Initial Executive Project Summary	February 1987	February 1987
Pre-Appraisal Mission	May 1987	May 1987
Appraisal Mission	Aug-Octo 1987	Jun/Jul 1987
Loan Negotiations	December 1987	Dec. 7-10, 1987
Board Approval	March 1988	February 23, 1988
Loan Signature	March 1988	April 1, 1988
Loan Effectiveness	June 30, 1988	June 1, 1988
Project Completion ^{/1}	June 30, 1992	August 2, 1991
Loan Closing	December 31, 1992	December 31, 1992

^{/1} The last authorization of withdrawal for a subloan was made by the Bank on August 2, 1991.

**THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)**

**Table 3: CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS
(US Million \$)**

Fiscal Year	Appraisal Estimate	Estimate	Actual	Actual as % of Appraisal Estimate
<u>1988</u>				
Mar. 1988				
Jun. 1988			5.00	
<u>1989</u>				
Sep. 1988	5.50	3.24	8.82	160
Dec. 1988	6.50	6.50	12.30	189
Mar. 1989	9.00	9.26	15.09	168
Jun. 1989	12.00	12.00	20.39	170
<u>1990</u>				
Sep. 1989	15.50	15.51	24.09	155
Dec. 1989	19.00	19.00	30.35	160
Mar. 1990	23.00	22.99	38.05	165
Jun. 1990	27.00	27.00	38.05	141
<u>1991</u>				
Sep. 1990	31.00	27.00	41.03	132
Dec. 1990	34.50	27.00	41.03	119
Mar. 1991	37.50	33.75	45.48	121
Jun. 1991	40.50	40.50	45.48	112
<u>1992</u>				
Sep. 1991	43.50	41.50	46.24	106
Dec. 1991	46.00	42.50	47.49	103
Mar. 1992	48.00	43.50	48.21	100
Jun. 1992	50.00	45.00	48.38	97
<u>1993</u>				
Sep. 1992	(50.00)	-	49.08 /a	98
Date of Final Disbursement - July 30, 1992.				

/a The final undisbursed amount of \$917,395.01 was cancelled as of October 2, 1992.

THIRD TECHNOLOGY DEVELOPMENT PROJECT(LOAN 2913-KO)
PROJECT COMPLETION REPORT
LIST OF SUBPROJECTS FINANCED UNDER THE LOAN

CATEGORY	COMPANY NAME	PROJECT NAME	DISBURSEMENT(US\$)
3-A-01	DAEWOO ELECTRIC MOTOR	Manufacturing Technology Import of Air Moving Motor & Hermetic Motor for Compressor	1,655,723.24
3-A-02	SAM HWA CAPACITOR CO.	Development for Localization of ZnO Varistor	1,296,610.91
3-A-03	SUN WHA METAL CO., LTD.	Commercialization of Alumium Foil Manufacturing Technology	1,500,578.08
3-A-04	HANKUK-ENGELHARD	Process Improvement of Monolythic Three-Way Catalytic Converter for Automotive Emission Control	2,000,000.00
3-A-05	KOREA WELDING ELECTR.	Import & Localization of Flux Cored Wire Manufacturing Technology	1,009,912.11
3-A-06	HI SUNG METAL CO., LTD.	Development of Conductive Paste	1,002,808.14
3-A-07	KOREA DENKI ONKYO CO.	Development of DY. FBT for High Resolution Monitor & High Definition Color TV	799,691.00
3-A-08	YOUNG-WOO CHEMICAL	Technology Import of Trimethylolpropane Production	1,605,413.26
3-A-09	YUKONG LTD.	Technology Import of a Process for Hydrocracking, Hydro-desulfurization of Heavy Petroleum Fractions	1,986,607.64
3-A-10	YUKONG LTD.	Technology Import of UOP Platforming Process with Continuous Catalyst Regeneration	1,005,405.36
3-A-11	TAI LIM PACKAGING CO.	Process Improvement of Corrugated Cardboard Manufacturing	1,150,708.63
3-A-12	ORIENT WATCH CO., LTD.	Development of Watch Components Processing Technology	2,003,607.37
3-A-13	DAEWOO ELECTRIC MOTOR	Quality Improvement of Hermetic Mortor & Motor for Home Appliances	1,198,288.49
3-A-14	KOHAP LTD.	Purchase of R&D Equipments	1,395,591.43
3-A-15	HI SEONG METAL CO., LTD.	Development of SnO2 Electric Contact	1,501,762.51
3-A-16	YUKONG ELASTOMER CO.	Technology Import of EPDM Production	1,991,958.56
3-A-17	SIEMENS BENDIX KOREA	Development of E.F.I. System	1,997,863.72

CATEGORY	COMPANY NAME	PROJECT NAME	DISBURSEMENT(US\$)
3-A-18	KOLON MERAK FIBER CO.	Technology Import of Polypropylene Staple Fiber Manufacturing	991,958.56
3-A-19	SAMSUNG WATCH CO., LTD.	Development for Localization of Mesuring Instruments	1,500,000.00
3-A-20	HI SEONG METAL CO., LTD.	Development of Cream Solder for SMT	1,000,000.00
3-A-21	SE-WHA PRECISION CO.	Commercialization of PP/PE Compounding	1,270,000.00
3-B-01	KOREA DATA SYSTEM CO.	Development of New Model SMPS	94,839.70
3-B-02	KOSHIN ENERGY MANAGEMENT	Development of Gun Type Hydraulic Actuated Burner	300,000.00
3-B-03	SUNKYONG ENG. & CONST.	Technology Import of Auto CAD Facet	399,940.28
3-B-04	WHA-SHIN MFG. CO., LTD.	Development of Chassis Component for New Model Car	200,000.00
3-B-05	WOOSUNG CHEMICAL IND.	Development of Color Compound	199,922.68
3-B-06	SONG WOUN INDUSTRIAL	Development of DBTO	200,000.00
3-B-07	SUNG SHIN CO. LTD.	Porcess Improvement/Quality Improvement of Small Precision AC Motor	362,678.61
3-B-08	SHIN IL IND CO.	Development of Material for S-Bone China	299,942.15
3-B-09	KANGNAM CHEMICAL CO.	Purchase of R&D Equipments	61,791.12
3-B-10	FINE PLASTIC CO. LTD.	Automation of Injection Process	249,903.49
3-B-11	SAM WOO TELECOMMUNIC	Development of Tester Bed for Leased Line	47,182.50
3-B-12	YANG JI CHEMICALS CO.	Localization of Nifedipine	79,968.96
3-B-13	HAN CHANG ELECTRIC	Development/Commercialization of Coaxial Cable for High Frequency	500,805.47
3-B-14	DAE HA PHARMACEUTICA	Technology Import of Estradiol Patch	200,424.81
3-B-15	KIRIN SYSTEMS CORP.	Development of Circulation VAN System	170,104.71
3-B-16	SHIN IL ENTERPRISE	Development of S-Bone China Ware Manufacturing Technology	250,569.03
3-B-17	GOLD STAR SOFTWARE	Development of Library VAN Core Technology	448,255.23
3-B-18	KOREA ELECTRICAL MFT.	Development of Switching Power Supply for Switching System	97,550.00
3-B-19	NAE WAE ELECTRIC CO.	Development of PCB Surface Mourfing Technology	250,702.32

CATEGORY	COMPANY NAME	PROJECT NAME	DISBURSEMENT(US\$)
3-B-20	KOSHIN ENERGY MANAGEMENT	Development of Low Pressurized Air Injection Type Burner	701,980.55
3-B-21	KUKJE PHARMA IND. CO.	Development of Trimebutine Maleate	699,431.01
3-B-22	HYUPJIN PHOTO CHEMICAL	Development of Graphic Arts Film	50,164.95
3-B-24	SAMSUNG WATCH CO.	Automation of Watch Assembling Process	699,642.37
3-B-25	SAMSUNG WATCH CO.	Development of Plating Solution & Chemicals for Watch Plating	698,748.12
3-B-26	CHO KWANG PAINT IND.	Development of Polyisocyanate	701,621.48
3-B-27	OTTOGI FOODS CO. LTD.	Purchase of R&D Equipments for a Laboratory Attached	1,622.20
3-B-28	DATAComm CO., LTD.	Development of Computer Network System	363,812.12
3-B-29	TAE IL MAGNETICS CO.	Development of Floppy Head	250,544.63
3-B-30	TAE IL MAGNETICS CO.	Development of Thin Film Head for HDD	250,544.62
3-B-31	WOO SHIN TEXTILE CO.	Development of Silk Textile by Air Jet Texturing	179,269.56
3-B-32	DONG IL TECHNOLOGY LTD.	Development of 4 Types of Noise Filter including Blocking Type Noise Filter	149,905.29
3-B-33	KOREA ELECTRIC CO., LTD.	Development of Movable Electronic Display Panel System	250,386.82
3-B-34	AERO SYSTEM INC.	Development of Active Speaker System	249,842.45
3-B-35	DONGBO S.C. CORP.	Development and Commercialization of Ultraviolet Observer	139,969.96
3-B-36	LUCKY ADVANCED MAT.	Technology Import of Acetic Acid/Vinyl Acetate Production	702,433.40
3-B-37	SUNKYONG ENGR. CONST.	Technology Import of Distillation Column Manufacturing	499,105.75
3-B-38	YUYU IND. CO., LTD.	Purchase of R&D Equipment/Actomation of Manufacturing Process	299,780.45
3-B-39	SAM-SUNG CHEMICAL IND.	Development of High Precision Medical PVC Tube	79,856.88
3-B-40	JIN-SUNG ELECTRONICS	Process Improvement of Condenser Mike Manufacturing	249,553.04
3-B-41	SAM-SUNG CHEMICAL IND.	Development of PVDC Wrap Film	248,607.24

CATEGORY	COMPANY NAME	PROJECT NAME	DISBURSEMENT(US\$)
3-B-42	YOUNGONE COMMUNICATION	Development of High Frequency (500MHz) SMPS	250,445.70
3-B-43	NAE WAE SEMICONDUCTOR	Development of Hard Disk Controller	699,558.63
3-B-44	YOUNG ONE COMMUNICATION	Automation of SMPS Manufacturing	349,779.31
3-B-45	KIRIN SYSTEM CORP.	Development of Medium-Sized Circulation Administration System	300,000.00
3-B-47	THE CLOUD INC.	Development of Korean/Chinese Processing ASIC for Monochrome	339,543.30
3-B-48	SAMYOUNG PURE CHEMICAL	Technology Import of High-purified Hydrogen Peroxide Manufacturing Process	287,935.31
3-B-49	HAN-WHA INDUSTRIAL CO.	Development of 386 PC Main Board/ Commercialization of AT Main Board	280,000.00
3-B-50	DONGSUNG BOILER CO., LTD.	Development of Heater Operated by Hot Running Water	300,000.00
3-B-51	KIRA ELECTRONICS CO.	Process Improvement of PCB Manufacturing	418,990.52
3-B-52	YOUNGWOONG CHEMICAL CO.	Technology Import of Half-purified Hydrogen Peroxide for Semiconductor	259,511.78
3-B-53	BOW ELECTRONICS CO., LTD.	Development of New type Multi-function Cordless Phone	150,000.00
3-B-54	NAE WAE SEMICONDUCTOR	Development of Video Graphic Adaptor	700,000.00
3-B-55	HYEH KONG INDUSTRY, LTD.	Development of Cellulase	200,000.00
3-B-56	HANJIN POWER SUPPLY	Development of SMPS for PC/PABX	160,000.00
3-B-57	OCN TECH CORP.	Development of Cordless Phone	239,423.18
3-B-58	NAE WAE SEMICONDUCTOR	Development SMT Version 286 PC Mother Board	698,849.70
3-B-59	SAMBON PRECISION ELECTRONICS	Development and Commercialization of New Type In-ear Headphone	399,038.67
3-B-60	KONGSUNG COMMUNICATION	Development and Commercialization of Slim Type DTS Cassette Player	700,000.00
Total			49,078,969.06

CATAGORY	COMPANY NAME	PROJECT COST		APPROVAL AMOUNT	
		MIL. WON	THOU. US	MIL. WON	THOU. US
3-A-01	DAEWOO ELECTRIC MOTOR		1,655		1,655
3-A-02	SAM HWA CAPACITOR CO.	310	1,300	200	1,300
3-A-03	SUN WHA METAL CO., LTD.	5,241	6,762	500	1,500
3-A-04	HANKUK-ENGELHARD	548	2,000	450	2,000
3-A-05	KOREA WELDING ELECTR.	236	1,100	150	1,009
3-A-06	HI SUNG METAL CO., LTD.	510	1,000	400	1,000
3-A-07	KOREA DENKI ONKYO CO.	989	800	300	800
3-A-08	YOUNG-WOO CHEMICAL		2,249		1,700
3-A-09	YUKONG LTD.	715	8,088	500	2,000
3-A-10	YUKONG LTD.	715	2,405	500	1,000
3-A-11	TAI LIM PACKAGING CO.	631	1,150	500	1,150
3-A-12	ORIENT WATCH CO., LTD.	476	1,319	450	2,000
3-A-13	DAEWOO ELECTRIC MOTOR	561	1,200	450	1,200
3-A-14	KOHAP LTD.	483	1,425	300	1,400
3-A-15	HI SEONG METAL CO., LTD.	550	1,500	300	1,500
3-A-16	YUKONG ELASTOMER CO.		2,700		2,000
3-A-17	SIEMENS BENDIX KOREA		2,700		2,000
3-A-18	KOLON MERAK FIBER CO.	285	5,682		1,000
3-A-19	SAMSUNG WATCH CO., LTD.	230	2		1,500
3-A-20	HI SEONG METAL CO., LTD.	568	673		1,000
3-A-21	SE-WHA PRECISION CO.	1,910		500	1,400
3-B-01	KOREA DATA SYSTEM CO.	527	100	400	100
3-B-02	KOSHIN ENERGY MANAGEMENT	639	117	400	300
3-B-03	SUNKYONG ENG. & CONST.	170	423	130	400
3-B-04	WHA-SHIN MFG. CO., LTD.	825	200	480	200
3-B-05	WOOSUNG CHEMICAL IND.	462	100	300	200
3-B-06	SONG WOUN INDUSTRIAL	573	200	480	200
3-B-07	SUNG SHIN CO. LTD.	241	400	200	400
3-B-08	SHIN IL IND CO.	437	300	400	300
3-B-09	KANGNAM CHEMICAL CO.	37	300	30	300
3-B-10	FINE PLASTIC CO. LTD.	500	250	400	250
3-B-11	SAM WOO TELECOMMUNIC	135	50	110	50
3-B-12	YANG JI CHEMICALS CO.	142	80	120	80
3-B-13	HAN CHANG ELECTRIC	67	700		700
3-B-14	DAE HA PHARMACEUTICA	267	457	200	200
3-B-15	KIRIN SYSTEMS CORP.	510	170	350	170
3-B-16	SHIN IL ENTERPRISE	471	250	450	250
3-B-17	GOLD STAR SOFTWARE	271	447	200	447
3-B-18	KOREA ELECTRICAL MFT.	260	97	200	97
3-B-19	NAE WAE ELECTRIC CO.	234	250	200	250

CATAGORY	COMPANY NAME	PROJECT COST		APPROVAL AMOUNT	
		MIL. WON	THOU. US\$	MIL. WON	THOU. US\$
3-B-20	KOSHIN ENERGY MANAGEMENT	1,113		480	700
3-B-21	KUKJE PHARMA IND. CO.	252	819	200	700
3-B-22	HYUPJIN PHOTO CHEMICAL	104		70	50
3-B-24	SAMSUNG WATCH CO.		900		700
3-B-25	SAMSUNG WATCH CO.		900		700
3-B-26	CHO KWANG PAINT IND.	588	714	480	700
3-B-27	OTTOGI FOODS CO. LTD.	597	600		600
3-B-28	DATAComm CO., LTD.	233	363	200	363
3-B-29	TAE IL MAGNETICS CO.	634		400	250
3-B-30	TAE IL MAGNETICS CO.	879		450	250
3-B-31	WOO SHIN TEXTILE CO.	133	214	100	200
3-B-32	DONG IL TECHNOLOGY LTD.	255		100	150
3-B-33	KOREA ELECTRIC CO., LTD.	202	80		250
3-B-34	AERO SYSTEM INC.	616		350	250
3-B-35	DONGBO S.C. CORP.	251	150	200	150
3-B-36	LUCKY ADVANCED MAT.	2,925	750		700
3-B-37	SUNKYONG ENGR. CONST.	586	500		500
3-B-38	YUYU IND. CO., LTD.	275	150	100	300
3-B-39	SAM-SUNG CHEMICAL IND.	550	89	450	80
3-B-40	JIN-SUNG ELECTRONICS	319			250
3-B-41	SAM-SUNG CHEMICAL IND.	500		400	250
3-B-42	YOUNGONE COMMUNICATION	750		400	250
3-B-43	NAE WAE SEMICONDUCTOR	600	710	500	700
3-B-44	YOUNG ONE COMMUNICATION	380	298	200	350
3-B-45	KIRIN SYSTEM CORP.	345	300	200	300
3-B-47	THE CLOUD INC.	559	340	500	340
3-B-48	SAMYOUNG PURE CHEMICAL		340		270
3-B-49	HAN-WHA INDUSTRIAL CO.	255	280	200	280
3-B-50	DONGSUNG BOILER CO., LTD.	625		300	300
3-B-51	KIRA ELECTRONICS CO.	324	360		480
3-B-52	YOUNGWOONG CHEMICAL CO.				300
3-B-53	BOW ELECTRONICS CO., LTD.	303		100	150
3-B-54	NAE WAE SEMICONDUCTOR	80	700		700
3-B-55	HYEH KONG INDUSTRY, LTD.	241			200
3-B-56	HANJIN POWER SUPPLY	143	160		160
3-B-57	OCN TECH CORP.	456	157	300	240
3-B-58	NAE WAE SEMICONDUCTOR	561	731	500	700
3-B-59	SAMBON PRECISION ELECTRONICS	587			400
3-B-60	KONGSUNG COMMUNICATION	346	700		700
Total		39,293	61,906	17,730	49,921

THIRD TECHNOLOGY DEVELOPMENT PROJECT(LOAN 2913-KO)

PROJECT COMPLETION REPORT

DISTRIBUTION OF SUBPROJECTS

(1) Number of Projects and Amount by Industry Sector

Industry Sector	No. of Projects	Amount (E\$)
Machinery / Metal	14	11,712,746.99
Electronics / Electrical	36	17,877,220.81
Chemical / Others	29	19,489,001.26
Total	79	49,078,969.06

(2) Number of Projects and Amount by Project Type

R & D Type	No. of Projects	Amount (E\$)
Purchase of R & D equipments	4	2,547,696.40
R & D	41	23,396,578.78
Improvement of manufacturing process	14	10,123,392.46
Commercialization of new product	9	3,658,443.17
Technology import	11	9,352,858.25
Total	79	49,078,969.06

(3) Number of Projects and Amount by Company Size

Company Size	No. of Projects	Amount (E\$)
Large	16	16,542,757.57
Small & Medium	63	32,536,211.49
Total	79	49,078,969.06

(4) Number of Projects and Amount by Financing Instrument

Financing Instrument	No. of Projects	Amount (E\$)
Conventional Loan	79	49,078,969.06

(5) Number of Projects and Amount by Subloan Size

Subloan Size	No. of Projects	Amount (E\$)
A Subloan	21	29,864,489.01
B Subloan	58	19,214,480.05
Total	79	49,078,969.06

(6) Number of Projects and Amount by Region

Region	No. of Projects	Amount (E\$)
Seoul	36	20,137,572.45
Kyung-Ki	18	11,908,565.37
Kyung-Nam	4	3,890,349.05
Kyung-Buk	2	894,530.70
Jun-Nam	2	2,854,011.73
Jun-Buk	1	239,423.18
Chung-Nam	3	569,143.01
Chung-Buk	1	1,500,578.08
Pusan	4	2,111,456.27
Taeku	1	200,000.00
Inchon	7	4,773,339.22
Total	79	49,078,969.06

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913-KO)
PROJECT COMPLETION REPORT
KTB INSTITUTIONAL PERFORMANCE
(STAFF TRAINING FOR 1988-1992)

1. Overseas Training

	1988	1989	1990	1991	1992
o Duration					
- Long-term	-	1	1	-	-
- Short-term	2	6	2	4	2
o Field					
- Financing R&D / Venture Capital Operations	2	6	3	4	2
- Technological innovation / Small business management	-	1	-	-	-
o Destination					
- U.S.A.	-	2	2	4	2
- Europe	-	-	-	-	-
- Japan	1	1	-	-	-
- South-East Asia	1	4	1	-	-

2. Domestic Training

	1988	1989	1990	1991	1992
(1) External Courses (Short-term only)					
o Finance & Investment	6	12	19	12	6
o Capital Market (KSTI)	5	8	-	-	-
o Marketing (KMI)	2	1	-	-	-
o Planning & Administration (KPC, FKI etc)	2	2	-	6	5
o MIS	2	6	-	-	1
(2) Graduate School	3	2	6	4	3
(3) OJT in portfolio companies	9	6	1	3	1
(4) New employed staffs Orientation	6	5	2	-	4
(5) Group Training	70	-	4	15	14

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT(LOAN 2913-KO)
PROJECT COMPLETION REPORT
KTB Financed R&D Projects Performed by Public Research Institute
(Won million)

Name of the Institute	No. of Projects	Total Budget	Amount of KTB Financing
KAIST	26	14,158	10,254
KIMM	19	6,585	5,355
KRICT	7	5,290	4,332
KIER	5	1,517	1,220
ETRI	3	994	800
KGTRI	2	888	380
Total	62	29,432	22,341

* Abbreviations *

KAIST : Korea Advanced Institute of Science and Technology
KIMM : Korea Institute of Machinery and Metals
KRICT : Korea Research Institute of Chemical Technology
KIER : Korea Institute of Energy Resources
ETRI : Electronic Technology Research Institute
KGTRI : Korea Ginseng and Tobacco Research Institute

Table 5.1

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913 - KO)
PROJECT COMPLETION REPORT
Estimated and Actual Amount of Financial Support (Currency and Instrument)
(Won Billion)

	1988		1989		1990		1991		1992		Total ('85 - '92)	
	Est	Actual	Est	Actual	Est	Actual	Est	Actual	Est	Actual	Est	Actual
Approval basis												
Local Currency												
- Conventional Loan	48.0	43.7	52.0	44.5	53.6	49.9	57.3	61.6	151.5	55.1	362.4	294.8
- Conditional Loan	1.8	1.6	2.6	0.0	1.0	0.4	1.0	0.0	1.0	0.0	7.4	2.0
- Leasing	0.0	0.0	3.2	3.3	17.7	20.5	21.0	17.8	40.0	18.9	61.9	59.0
- Factoring	5.6	8.4	10.6	12.3	9.6	12.6	10.0	8.1	20.0	19.7	56.0	61.1
- Equity												
Convertible Bonds	0.0	1.4	0.0	3.5	5.9	2.9	8.0	6.8	11.0	12.9	24.9	27.5
Equity Shares	11.7	5.8	12.6	12.0	11.9	20.7	16.0	8.1	13.0	5.7	65.2	53.3
Sub Total	11.7	7.2	12.6	15.5	17.8	23.6	24.0	14.9	24.0	19.6	90.1	80.8
Total	61.5	52.5	67.2	60.0	72.4	73.9	62.3	76.5	176.5	114.7	459.9	377.6
Foreign Currency												
- Conventional Loan	19.8	17.0	19.8	15.5	10.5	15.6	7.7	9.8	13.5	19.1	71.3	77.0
- Conditional Loan	0.4	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
- Leasing	0.0	0.0	0.0	0.0	12.6	13.3	14.0	10.4	0.0	0.1	26.6	23.8
- Equity												
Convertible Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equity Shares	1.8	0.0	1.5	0.0	0.0	1.5	0.0	1.4	0.0	0.6	3.3	3.5
Sub Total	1.8	0.0	1.5	0.0	0.0	1.5	0.0	1.4	0.0	0.6	3.3	3.5
Total	22.0	17.0	21.9	15.5	23.1	30.4	21.7	21.6	13.5	19.8	102.2	104.3
Total												
- Conventional Loan	67.8	60.7	71.8	60.0	64.1	65.5	65.0	71.4	165.0	114.2	433.7	371.8
- Conditional Loan	2.2	1.6	3.2	0.0	1.0	0.4	1.0	0.0	1.0	0.0	8.4	2.0
- Leasing	0.0	0.0	3.2	3.8	30.3	33.8	35.0	29.2	40.0	17.0	108.5	82.8
- Factoring	5.6	8.4	10.6	12.3	9.6	12.6	10.0	8.1	20.0	19.7	56.0	61.1
- Equity /a												
Convertible Bonds	0.0	1.4	0.0	3.5	5.9	2.9	8.0	6.8	11.0	12.9	24.9	27.5
Equity Shares	13.5	5.8	14.1	12.0	11.9	22.2	16.0	9.5	13.0	7.3	66.5	56.8
Sub Total	13.5	7.2	14.1	15.5	17.6	25.1	24.0	16.3	24.0	20.2	93.4	84.3
Total	89.1	77.9	102.9	91.6	123.0	137.4	135.0	124.0	250.0	171.1	700.0	602.0
Disbursement basis												
Local Currency												
- Conventional Loan	47.0	46.1	50.0	48.6	54.4	52.4	57.9	53.6	78.9	77.6	283.2	276.5
- Conditional Loan	1.7	1.7	2.3	0.1	2.5	0.3	2.6	0.5	2.6	1.5	11.9	4.1
- Leasing	0.0	0.0	13.8	14.6	18.9	12.9	19.2	18.9	14.9	14.1	66.8	60.9
- Factoring	2.6	2.8	20.2	19.7	25.6	35.4	52.4	60.3	55.3	47.3	156.3	100.5
- Equity												
Convertible Bonds	0.0	1.2	0.0	3.9	1.7	2.1	5.3	6.3	8.5	13.0	16.0	23.5
Equity Shares	9.3	5.2	10.3	10.5	11.4	18.7	12.1	6.1	12.9	6.3	56.0	45.5
Sub Total	9.3	6.4	10.3	14.4	13.1	20.8	17.9	12.4	21.4	21.3	72.0	75.0
Total	60.6	57.0	96.6	97.4	114.7	121.8	150.0	145.7	173.3	162.0	555.2	550.9
Foreign Currency												
- Conventional Loan	19.3	16.4	19.9	16.6	21.2	17.2	22.8	10.9	23.2	15.0	106.4	76.1
- Conditional Loan	0.4	0.0	0.5	0.0	0.6	0.0	0.5	0.0	0.6	0.0	2.7	0.0
- Leasing	0.0	0.0	0.0	0.0	6.1	7.6	7.6	8.6	0.0	0.0	15.7	12.2
- Equity												
Convertible Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equity Shares	1.7	0.0	1.6	0.0	2.2	1.5	2.7	1.4	2.6	0.6	11.0	0.0
Sub Total	1.7	0.0	1.6	0.0	2.2	1.5	2.7	1.4	2.6	0.6	11.0	0.0
Total	21.4	16.4	22.0	16.6	32.1	26.3	33.7	20.9	26.6	15.6	135.6	95.6
Total												
- Conventional Loan	66.3	62.5	69.9	65.2	75.6	69.6	80.7	64.5	102.1	92.9	394.6	354.6
- Conditional Loan	2.1	1.7	2.8	0.1	3.1	0.3	3.2	0.5	3.4	1.5	14.6	2.1
- Leasing	0.0	0.0	13.8	14.6	27.0	20.5	26.8	27.5	14.9	14.1	82.5	73.1
- Factoring	2.6	2.8	20.2	19.7	25.6	35.4	52.4	60.3	55.3	47.3	156.3	100.5
- Equity /a												
Convertible Bonds	0.0	1.2	0.0	3.9	1.7	2.1	5.3	6.3	8.5	13.0	16.0	23.5
Equity Shares	11.0	5.2	11.9	10.5	13.6	20.2	14.6	7.5	15.7	6.9	67.0	56.5
Sub Total	11.0	6.4	11.9	14.4	15.3	22.3	20.6	13.8	24.2	21.9	83.0	79.5
Total	82.0	73.4	118.6	114.0	146.6	149.1	153.7	166.6	199.9	177.6	731.0	679.7

Table 5.2

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2013 - KO)
PROJECT COMPLETION REPORT
Estimated and Actual Amount of Financial Support (Collateral Conditions)
(Won billion)

(Approval basis)	1988		1989		1990		1991		1992		Total ('85 -	
	Est	Actual	Est	Actual	Est	Actual	Est	Actual	Est	Actual	Est	Act.
Conventional Loans												
With Collateral	n.a.	39.8	n.a.	33.7	n.a.	53.7	n.a.	64.4	n.a.	103.2	n.a.	294
Without Collateral	n.a.	20.9	n.a.	26.3	n.a.	11.8	n.a.	7.0	n.a.	11.0	n.a.	77
Sub Total	67.8	60.7	71.8	60.0	64.1	65.5	65.0	71.4	165.0	114.2	433.7	371
Leasing												
With Collateral	n.a.	0.0	n.a.	0.0	n.a.	22.0	n.a.	12.7	n.a.	8.5	n.a.	43
Without Collateral	n.a.	0.0	n.a.	3.8	n.a.	11.8	n.a.	15.5	n.a.	8.5	n.a.	39
Factoring	5.8	8.4	10.8	12.3	9.8	12.6	10.0	8.1	20.0	19.7	56.0	61
Sub Total	5.6	8.4	13.8	16.1	40.1	46.4	45.0	36.3	60.0	36.7	164.5	143
Conditional Loan	2.2	1.6	3.2	0.0	1.0	0.4	1.0	0.0	1.0	0.0	8.4	2
Equity Investments												
Convertible Bonds												
With Collateral	n.a.	0.7	n.a.	1.6	n.a.	2.2	n.a.	5.0	n.a.	8.7	n.a.	16
Without Collateral	n.a.	0.7	n.a.	1.9	n.a.	0.7	n.a.	1.8	n.a.	4.2	n.a.	9
Sub Total	0.0	1.4	0.0	3.5	5.9	2.9	8.0	6.8	11.0	12.9	24.9	27
Equity Shares /a	13.5	5.8	14.1	12.0	11.9	22.2	16.0	9.5	13.0	7.3	68.5	56
Total	15.7	8.8	17.3	15.5	18.8	25.5	25.0	16.3	25.0	20.2	101.8	86
Grand - Total	89.1	77.9	102.9	91.6	123.0	137.4	135.0	124.0	250.0	171.1	700.0	602
No. of Projects	210	222	230	278	250	288	270	267	330	352	1,290	1,4
Avg. Fin. Amount/Project (Won million)	390	305	378	265	385	293	392	325	400	380	1,945	1.5
[Proportion(%)]												
Conventional Loans												
With Collateral	n.a.	51.1	n.a.	36.8	n.a.	39.1	n.a.	51.9	n.a.	60.3	n.a.	49
Without Collateral	n.a.	26.8	n.a.	28.7	n.a.	8.6	n.a.	5.6	n.a.	6.4	n.a.	12
Sub Total	76.1	77.9	69.8	65.5	52.1	47.7	48.1	57.6	66.0	66.7	62.0	61
Leasing												
With Collateral	n.a.	0.0	n.a.	0.0	n.a.	16.0	n.a.	10.2	n.a.	5.0	n.a.	7
Without Collateral	n.a.	0.0	n.a.	4.1	n.a.	8.6	n.a.	12.5	n.a.	5.0	n.a.	6
Factoring	6.3	10.8	10.3	13.4	8.0	9.2	7.4	6.5	8.0	11.5	8.0	10
Sub Total	6.3	10.8	13.4	17.6	32.6	33.8	33.3	29.3	24.0	21.4	23.5	23
Conditional Loan	2.5	2.1	3.1	0.0	0.8	0.3	0.7	0.0	0.4	0.0	1.2	0
Equity Investments												
Convertible Bonds												
With Collateral	n.a.	0.9	n.a.	1.7	n.a.	1.6	n.a.	4.0	n.a.	5.1	n.a.	3
Without Collateral	n.a.	0.9	n.a.	2.1	n.a.	0.5	n.a.	1.5	n.a.	2.5	n.a.	1
Sub Total	0.0	1.8	0.0	3.8	4.8	2.1	5.9	5.5	4.4	7.5	3.6	4
Equity Shares	15.2	7.4	13.7	13.1	9.7	16.2	11.9	7.7	5.2	4.3	9.6	9
Total	17.6	11.3	16.8	16.9	15.3	18.6	18.5	13.1	10.0	11.8	14.5	14
Grand - Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100
With Collateral	n.a.	52.0	n.a.	38.5	n.a.	40.7	n.a.	56.0	n.a.	65.4	n.a.	52
Without Collateral	n.a.	48.0	n.a.	61.5	n.a.	59.0	n.a.	44.0	n.a.	34.6	n.a.	47

Table 5.3

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913 - KD)
PROJECT COMPLETION REPORT
Estimated and Actual Resource Mobilization 1988 - 1992 /a
(Won million)

December 31	1988		1989		1990		1991		1992		Total ('88 - '92)	
	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual
<u>Local Resources</u>												
<u>Equity</u>												
Government	0	(3,888)	0	0	0	0	0	0	0	0	0	(3,888)
Private	5,000	8,088	3,000	2,510	38,000	0	8,000	0	22,000	14,158	74,000	22,785
Sub Total	5,000	2,400	3,000	2,510	38,000	0	8,000	0	22,000	14,158	74,000	18,897
<u>Borrowings</u>												
Government	0	27,000	0	15,000	0	0	0	0	0	0	0	42,000
Debentures /b	38,000	30,000	14,250	15,000	30,000	50,000	100,000	82,480	100,000	73,445	282,250	280,925
Other sources	0	880	0	878	10,000	1,480	5,000	1,380	0	0	15,000	4,488
Deposits	0	0	0	0	0	0	0	0	50,000	2,900	50,000	2,900
Science & Technology Promotion Fund	0	0	0	0	0	0	0	0	20,000	0	20,000	0
Sub Total	38,000	57,880	14,250	30,878	40,000	51,480	105,000	83,860	170,000	76,345	387,250	310,313
<u>Foreign Resources</u>												
IBRD	21,398	15,261	22,110	12,145	14,700	7,485	2,100	4,738	1,300	1,241	81,808	40,880
BOJ and other sources	0	27,022	0	0	14,000	1,332	14,900	9,555	1,700	1,542	30,800	38,491
Grand - Total	64,398	102,833	36,360	45,333	104,700	60,307	130,000	108,173	185,000	83,284	533,458	409,730

/a Disbursement basis

/b Before discount

Table 5.4

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913-KO)
PROJECT COMPLETION REPORT
Estimated and Actual Financial Indicators 1988-1992
(Won billion)

Years ending December 31	1988		1989		1990		1991		1992	
	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual
Percentage of Average Total Assets										
1. Gross Income /a	11.5	11.4	12.0	11.8	15.1	11.4	14.8	13.8	17.5	15.4
2. Financial Expenses /b	7.1	7.7	8.8	8.0	11.8	7.9	8.7	8.5	10.0	9.1
3. Gross Spread (1 - 2)	4.4	3.7	3.4	5.8	3.5	3.5	5.9	5.3	7.5	6.3
4. Administrative Expenses	1.3	1.5	0.9	1.7	2.9	1.5	1.4	1.4	1.2	1.2
5. Provisions for losses	0.3	0.2	0.1	0.2	0.5	0.3	0.4	0.3	0.2	0.2
6. Net Income before Taxes	2.2	2.1	1.6	2.8	3.8	1.2	2.0	1.7	2.1	2.0
Net Income as % of Average Net Worth	8.3	8.7	5.1	11.0	10.5	8.8	11.3	10.8	12.1	12.0
Spread on Average LC Conventional loans										
Income/Avg. LC Conventional Loans (%) /c	12.05	12.49	n. a.	11.80	11.00	11.10	12.70	13.80	14.50	13.40
Fin. Expenses/Avg. LC Long-term Debt (%) /d	8.75	10.49	n. a.	8.80	10.50	10.70	10.90	10.30	13.90	13.00
Spread (%)	3.30	2.00	n. a.	2.80	0.50	0.40	1.80	3.50	0.60	0.40
Spread on Average FC Conventional loans										
Income/Avg. FC Conventional Loans (%)	11.40	10.49	n. a.	9.60	10.75	10.90	10.80	10.20	10.40	10.20
Fin. Expenses/Avg. IBRD Borrowings (%)	9.90	8.98	n. a.	8.88	10.20	10.00	9.30	9.50	10.30	10.10
Spread (%)	1.50	1.51	n. a.	0.74	0.55	0.90	1.30	0.70	0.10	0.10
Spread on Avg. Total Conventional loans										
Income/Avg. Total Conventional Loans (%)	11.80	11.75	14.45	10.90	10.95	11.10	11.80	12.50	12.80	12.50
Fin. Expenses/Avg. Total Long-term Debt (%)	9.22	9.92	12.54	8.89	10.80	10.60	10.40	10.10	12.40	12.30
Spread (%)	2.58	1.83	1.91	2.21	0.35	0.60	1.40	2.40	0.40	0.20
PRO FORMA SPREAD W/O INTEREST SUPPORT ON :										
Average LC Conventional Loans (%)	2.32	1.01	n. a.	0.00	2.58	0.70	2.54	0.80	2.40	2.50
Average FC Conventional Loans (%)	1.29	1.49	n. a.	0.00	1.85	1.70	1.88	1.60	1.30	1.20
Average Total Conventional Loans (%)	1.90	1.20	n. a.	0.00	1.90	1.10	1.20	1.00	1.60	1.70
Total Debt/Equity Ratio (times)	3.70	4.10	3.70	3.80	4.40	4.90	4.85	5.30	4.70	4.70
Long-term Debt / Equity Ratio (times)	3.10	3.30	3.50	3.40	3.40	3.70	4.80	4.50	3.30	3.30
Current Ratio (times)	n. a.	2.80	n. a.	4.30	3.57	4.30	4.30	3.30	2.10	2.10
Provisions / Total Portfolio (%)	n. a.	0.60	n. a.	0.40	0.70	0.40	0.80	0.50	0.50	0.60

/a Total Income - Foreign Exchange Translation Gains

/b Interest + Commitment Fees + Amortization

/c Income includes commitment fees

/d Financial Expenses include amortization of deferred charges

Table 5.5

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913 - KD)
PROJECT COMPLETION REPORT
Estimated and Actual Income Statements 1988 - 1992
(Won million)

Years ending December 31	1988		1989		1990		1991		1992	
	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual
Income										
Income on Conventional Loans										
Interest/commitment fees	23,116	18,601	24,387	18,601	18,913	19,742	21,386	22,779	29,102	23,979
COK's interest rate support	0	1,035	0	0	0	0	0	0	0	0
Sub Total	23,116	19,636	24,387	18,601	18,913	19,742	21,386	22,779	29,102	23,979
Income on Conditional Loans										
Royalty	1,129	841	1,489	869	1,103	1,035	1,165	1,345	1,471	1,504
COK's support	0	0	0	0	0	0	0	0	0	0
Sub Total	1,129	841	1,489	869	1,103	1,035	1,165	1,345	1,471	1,504
Income on Equity Investment										
Interest income on convertible bonds	363	809	457	823	1,147	1,014	1,228	1,124	1,920	1,927
Dividend on equity shares	353	174	781	319	490	378	648	607	698	598
Capital gain on sales of equity shares	302	36	3,302	645	4,137	3,591	10,308	8,427	13,376	9,169
Sub Total	1,108	1,043	4,540	1,787	5,774	4,983	12,184	10,158	15,994	11,694
Income on Factoring	0	323	0	1,069	2,614	1,904	3,431	2,800	4,417	2,900
Lease Rental	0	0	0	0	2,947	1,716	10,210	7,039	14,424	12,444
Interest income on liquid holdings	3,874	4,136	3,925	3,600	4,013	4,154	4,187	6,912	12,607	10,645
Foreign exchange translation gains & losses (net)	0	(360)	0	(140)	(278)	(226)	(758)	(721)	(1,255)	(637)
Other income (net)	0	223	0	360	1,378	822	3,970	1,383	3,659	7,367
Total Income	29,227	25,848	34,341	26,176	36,464	34,128	55,775	51,825	80,419	69,956
Expenses										
Financial expenses	17,625	16,806	21,159	14,876	19,083	22,120	29,603	29,694	45,794	38,904
Depreciation and amortization	1,082	448	1,165	563	2,802	1,400	3,839	2,263	2,875	2,302
Depreciation of Lease Assets					1,538	1,167	6,500	5,129	10,038	9,156
Administration expenses	2,203	3,306	2,424	3,662	4,415	4,478	5,295	5,120	5,370	5,278
Provision for losses	357	528	371	585	626	1,006	1,456	1,253	1,030	638
Write-off of bad debts	1,071	0	1,663	0	270	237	1,380	1,850	5,440	4,222
Total Expenses	22,338	21,063	26,782	19,686	28,934	30,465	48,073	45,309	70,547	60,840
Net Income Before Tax	6,889	4,785	7,559	6,490	7,530	3,663	7,702	6,516	9,872	9,116
Taxes	1,404	937	1,656	854	956	359	1,228	1,337	2,445	2,510
Net Income After Tax	5,485	3,848	5,903	5,636	6,574	3,304	6,474	5,179	7,427	6,606

Table 5.6

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913-KD)
PROJECT COMPLETION REPORT
Estimated and Actual Balance Sheets 1988 - 1992
(Won million)

Years ending December 31	1988		1989		1990		1991		1992	
	Est	Actual	Est	Actual	Est	Actual	Est	Actual	Est	Actual
Assets										
Cash and liquid holdings	33,830	33,727	31,565	27,133	30,623	24,897	68,500	69,700	112,054	113,948
Interest receivable	9,201	3,459	11,855	4,121	12,563	4,496	4,893	5,503	7,956	8,206
Conventional loans	163,999	166,832	173,451	173,124	179,427	190,715	185,697	183,915	210,547	206,767
Conditional loans	8,429	5,107	8,235	4,009	8,526	3,876	4,015	3,035	4,215	3,873
Equity investments										
Convertible bonds	0	5,507	0	10,466	18,023	17,367	11,069	10,590	13,042	13,159
Equity shares	30,119	12,912	38,516	20,506	32,203	31,102	44,765	44,298	45,773	45,522
Sub Total	30,119	18,419	38,516	30,971	50,226	48,469	55,834	54,888	58,815	58,681
Factoring	0	4,123	0	10,882	17,893	17,336	19,300	18,190	17,605	15,602
Lease assets	0	0	0	1,457	18,003	17,792	33,256	38,770	45,120	43,586
Net fixed assets	330	837	259	1,704	3,320	2,591	21,564	21,057	22,365	21,434
Net front-end fees / deferred charges	2,544	470	2,545	591	513	378	2,796	2,856	2,153	1,497
Other assets	1,931	6,033	1,932	13,281	22,504	21,604	19,102	21,229	17,834	17,997
Total Assets	248,363	239,007	268,361	267,263	343,598	332,144	420,957	419,113	498,664	491,591
Liabilities and Equity										
Current liabilities										
Current portion of long - term debt	0	28,073	0	11,399	11,359	12,382	11,359	29,348	93,758	94,344
Other current liabilities	10,230	7,760	13,012	14,650	49,876	52,362	49,876	26,228	25,451	24,423
Sub Total	10,230	35,833	13,012	26,049	61,235	64,744	61,235	55,576	119,209	118,767
Long - term debt										
Borrowings from government	40,860	68,950	40,250	81,250	80,050	80,050	78,050	78,050	74,050	74,050
Dibenture	44,915	30,000	49,165	45,000	70,000	65,000	140,000	139,034	140,000	140,209
Other sources	0	888	0	1,276	5,102	4,902	5,102	19,100	17,034	16,603
Borrowings from IBRD	100,623	57,350	108,702	57,206	61,563	59,153	61,500	58,345	53,500	52,699
Sub Total (gross)	186,488	155,188	198,117	184,732	216,715	209,105	284,652	284,530	284,584	263,561
Less current portion	0	28,073	0	11,399	11,359	12,382	11,359	29,348	93,758	94,344
Sub Total (net)	186,488	127,115	198,117	173,333	205,356	196,723	273,293	255,182	190,826	169,217
Severance Liabilities	534	862	638	1,432	2,069	1,973	2,591	2,494	3,512	3,397
Total Liabilities	197,252	191,853	211,767	212,213	280,039	275,822	348,478	352,600	407,305	405,725
Equity										
Paid - in capital	48,979	39,602	49,979	42,002	49,979	42,002	54,979	48,357	64,979	61,226
Retained earnings	4,152	7,522	6,636	13,068	13,590	14,320	17,500	18,156	29,380	24,640
Total Equity	53,131	47,124	56,614	55,070	63,569	56,322	72,479	66,513	94,359	85,866
Total Liabilities and Equity	248,383	239,007	268,381	267,283	343,608	332,144	420,957	419,113	498,664	491,591

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913-KO)
PROJECT COMPLETION REPORT
Estimated and Actual Sources and Uses of Funds 1988-1992
(Won billion)

Years ending December 31	1988		1989		1990		1991		1992		Total (88-92)	
	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual
Sources												
Net income	2,108	3,823	2,483	5,838	8,572	3,301	8,474	5,178	7,427	8,806	25,082	24,545
Depreciation and amortization	1,082	893	1,165	590	1,503	1,404	2,803	2,805	3,621	4,846	10,174	10,308
Depreciation of Lease Assets	0	0	0	12	1,065	1,187	5,493	5,129	9,211	9,158	15,822	15,484
Provision for losses	357	528	371	0	258	394	38	15	35	31	1,057	988
Provision for employees' severance lla.	95	249	105	598	889	642	874	808	1,284	857	3,047	3,230
Foreign exchange translation gains/losses(net)	0	(360)	0	(88)	(453)	(319)	(888)	(779)	(845)	(838)	(1,994)	(2,184)
Write-off of bad debts	1,071	0	1,883	0	270	237	1,380	1,850	5,440	4,222	8,824	8,309
Losses(gains) on sales of fixed assets	0	(41)	0	(7)	12	3	0	1	0	3	12	(41)
Internal Cash Generation	4,711	5,082	5,787	8,719	9,918	8,829	18,184	14,868	28,428	28,083	83,004	58,819
Equity												
Government	0	0	0	0	0	0	0	0	0	0	0	0
Private	5,000	2,400	3,000	2,150	38,000	0	8,000	8,354	22,000	14,188	74,000	25,080
Subtotal	5,000	2,400	3,000	2,150	38,000	0	8,000	8,354	22,000	14,188	74,000	25,080
Borrowings												
Government	0	27,000	0	15,000	0	0	0	0	0	0	0	42,000
Debtors / a	38,000	30,000	14,250	15,000	30,000	50,000	100,000	92,480	100,000	73,445	282,250	280,826
IBRD & Others	21,388	43,233	22,110	12,823	10,897	11,523	19,700	20,950	5,413	5,715	78,318	94,244
Subtotal	59,388	100,233	36,360	42,823	40,897	61,523	119,700	113,430	105,413	79,160	361,568	397,169
Collections												
Conventional loans	54,885	85,761	80,341	80,358	84,520	88,810	78,238	79,307	75,374	73,657	333,458	385,683
Conditional loans	805	1,108	1,009	1,077	512	495	493	481	589	645	3,538	3,804
Convertible bonds	0	1,574	0	1,803	7,302	8,905	2,512	2,413	8,978	7,788	18,782	20,584
Equity shares	198	229	1,851	238	1,203	1,018	15,230	14,397	10,389	8,188	28,878	25,052
Factoring loans	0	0	0	0	0	0	58,983	58,808	53,007	51,812	111,970	111,818
Financial Leases	0	0	0	0	0	339	883	789	2,036	1,478	2,899	2,584
Subtotal	56,118	88,870	83,001	83,578	73,537	75,388	158,397	157,173	148,383	144,568	497,434	529,345
Increase in current liabilities	2,441	3,540	2,782	8,988	5,203	8,550	1,238	1,058	2,518	3,428	14,180	21,584
Total Sources	127,684	198,835	110,830	122,258	165,353	150,270	301,497	292,911	304,740	288,365	1,010,184	1,031,757
Uses												
Disbursements												
Conventional loans	88,288	93,491	88,888	88,225	78,452	78,452	70,589	68,032	93,274	93,045	378,449	391,245
Conditional loans	2,192	1,889	2,852	171	498	350	102	87	1,481	1,489	7,125	3,758
Convertible bonds	0	2,274	0	5,940	12,451	11,370	8,538	8,121	10,750	13,129	31,737	40,834
Equity shares	10,950	4,229	11,950	7,847	11,893	10,644	7,183	8,738	9,302	9,041	51,258	38,497
Factoring loans	0	3,530	0	8,225	8,853	8,454	81,238	80,735	64,917	49,224	133,008	128,188
Lease Assets	0	0	0	1,479	20,231	17,857	30,215	28,314	15,708	14,788	88,152	83,418
Subtotal	78,408	105,183	84,890	80,887	128,378	123,127	177,821	174,005	185,430	170,704	685,727	683,918
Repayments of borrowings	40,448	74,122	24,731	28,392	13,238	12,874	41,014	43,010	27,459	30,084	148,888	188,482
Front-end fee/deferred charges	2,870	800	1,035	503	2,145	2,308	2,158	3,074	712	874	8,778	7,158
Increase in fixed assets	88	872	0	1,070	1,498	1,454	15,230	17,134	844	758	17,458	21,088
Increase in interest receivables	1,955	147	2,955	0	0	0	0	0	0	0	4,810	147
Other uses of funds (net)	0	2,048	0	14,297	2,853	3,831	2,380	3,057	12,512	14,588	17,735	37,829
Total Uses	124,587	182,782	113,171	135,149	148,118	143,564	238,581	240,290	238,757	218,804	881,194	918,819
Increase (Decrease) in Cash	3,097	17,153	(2,241)	(12,893)	17,235	6,706	62,916	52,621	67,983	49,561	148,990	113,138

Table 5.8

KOREA
THIRD TECHNOLOGY DEVELOPMENT PROJECT (LOAN 2913-KO)
PROJECT COMPLETION REPORT
Analysis of Conventional Loans in Arrears 1988-1992
(Won billion)

Year	1988	1989	1990	1991	1992
Number of Conventional Loans in Arrears					
Number of loans in arrears under 6 months	8	9	11	14	33
- as % of total loans	(1.11)	(1.08)	(1.53)	(1.47)	(2.84)
Number of loans in arrears over 6 months	7	4	3	5	0
- as % of total loans	(0.97)	(0.48)	(0.35)	(0.53)	0.00
Number of loans in arrears	15	13	14	19	33
- as % of total loans	(2.08)	(1.57)	(1.63)	(1.98)	(2.84)
Total number of loans in portfolio	719	828	859	853	1,121
Principal affected by arrears					
Total principal outstanding	192,880	180,300	180,715	185,897	210,547
Principal affected by arrears under 6 months	467	1,146	1,352	1,258	2,528
- as % of total principal outstanding	(0.24)	(0.72)	(0.71)	(0.68)	(1.20)
Principal affected by arrears over 6 months	2,777	801	752	912	0
- as % of total principal outstanding	(1.44)	(0.50)	(0.39)	(0.49)	0.00
Total principal affected by arrears	3,244	1,947	2,104	2,168	2,528
- as % of total principal outstanding	(1.68)	(1.22)	(1.10)	(1.17)	(1.20)
Actual Amounts in Arrears					
Arrears under 6 months	87	103	179	198	184
- as % of Principal outstanding	(0.04)	(0.06)	(0.09)	(0.11)	(0.09)
Arrears over 6 months	260	101	138	151	142
- as % of Principal outstanding	(0.14)	(0.06)	(0.07)	(0.08)	(0.07)
Total arrears	327	204	315	347	336
- as % of Principal outstanding	(0.17)	(0.13)	(0.17)	(0.19)	(0.16)
Collection Performance					
Arrears at beginning of year					
- Principal	442	327	287	352	381
- Interest	80	133	130	107	117
Total	522	460	417	459	478
Amounts falling due during year					
- Principal	49,530	48,675	40,756	48,528	50,781
- Interest	14,450	14,065	13,036	14,523	16,820
Total	63,980	62,740	53,792	61,051	67,681
Collections during year					
- Principal	49,845	48,798	40,469	46,427	50,387
- Interest	14,397	14,151	12,908	13,823	16,715
Total	64,042	62,949	53,375	60,050	67,102
Arrears at end of year					
- Principal	327	204	574	453	735
- Interest	133	47	280	1,007	322
Total	460	251	834	1,460	1,057
Collection ratio / a	98.3	99.6	98.5	97.6	98.4

/a The collection ratio is defined as follows :

$$\frac{\text{Collections During Year}}{\text{Arrears at Beginning of Year} + \text{Amounts Falling due During Year}} \times 100$$

Table 6

KOREA
THIRD TECHNOLOGY DEVELOPEMENT PROJECT (LOAN 2913 - KO)
PROJECT COMPLETION REPORT
KTB's Shareholding, ending 1992
(Won million)

Shareholders	Amount	Percentage
Government	9,301	15.19
Yukong	11,646	19.02
Samsung Group (5)	4,720	7.71
Lucky Group (9)	4,714	7.70
Hyundai Group (15)	4,702	7.68
KDB	4,379	7.15
DEG	3,819	6.40
Hyosung Group (6)	2,495	4.07
ADB	2,400	3.92
Kia Group (2)	1,172	1.91
Daewoo Group (4)	934	1.53
KOREA Commercial Bank	884	1.44
Sangyong Group (3)	680	1.11
Others (180)	9,280	15.17
Total (230)	61,226	100.0

THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)

Table 7: STATUS OF COVENANTS

Section	Activity	Remarks
<u>Loan Agreement with KTB:</u>		
2.02 (a) (i)	Relend loan proceeds to finance 100% of the foreign expenditures or 60% of local expenditures on goods and services, lease and investments as stated in Schedules 1 and 2.	Complied
(ii)	Relend loan proceeds to meet 100% of consultants' services and overseas training as stated in Schedules 1 and 2.	Complied
2.02 (b)	Maintain a special account in dollars on terms and conditions satisfactory to the Bank and in accordance with Schedule 6.	Complied
3.02 (a)	Unless otherwise agreed by the Bank, Subloans, Investments and Lease will be made as stated in Schedule 5, and the applications and requests shall be presented to the Bank on or before September 30, 1991.	Complied
3.05	KTB shall adopt the Institutional Policy Statement, agreed upon with the Bank.	Complied (as a condition of loan effectiveness)
3.06	Exchange views with the Bank on its annual programs and targets.	Complied
4.01	KTB shall maintain and cause KTIC to maintain records to monitor and record the progress of the Project and of each Investment Project, and to reflect in accordance with consistently maintained sound accounting practices.	Complied
4.02 (a)	KTB shall:	
(i)	Have its accounts and financial statements audited in accordance with sound auditing principles by independent auditors acceptable to the Bank;	Complied
(ii)	Furnish the Bank, as soon as available but in any case not later than four months after the end of each year: certified copies of the financial statements as audited; and the report of such audit by the said auditors, of such scope and in such detail as the Bank shall have reasonably requested.	Complied, though usually with some delay /1

Section	Activity	Remarks
4.04	Except as the Bank shall otherwise agree, KTB shall maintain at all times a consolidated debt of no greater than six times the consolidated capital and surplus of KTB and all its subsidiaries.	Complied

Guarantee Agreement - with the GOK:

3.01	The GOK shall exchange views with the Bank regarding the transition arrangements, and the disposition of its share holdings in KTB's equity, and KTB's interest rate policy	Complied
3.02	The GOK shall make available to KTB during calendar year 1988 a loan of Won 27 billion.	Complied
3.03	The GOK shall provide a guarantee for KTB's debentures for an amount of W 10 billion in 1988.	Complied /2

/1 Audit Reports were generally received late by the Bank, and those for 1989 and 1990 should have been qualified, since KTB had not made a provision for its non-performing loans. The impact of such loans on KTB's financial condition was, however, quite limited.

/2 Won 20 billion worth of debentures were issued by KTB in 1988 with the GOK's guarantee.

THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)

Table 8.1: USE OF BANK RESOURCES: STAFF INPUT
(Staffweeks)

TASK	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	TOTAL
Preparation	2.9	1.6	3.4							7.9
Appraisal			14.4							14.4
Negotiations			7.3							7.3
Lending Operations	.7	16.7	.6							18.1
Supervision	.0		.7	10.9	1.7	3.1	1.1	.1		17.6
Completion								.3	3.2	3.5
TOTAL	3.7	18.3	26.5	10.9	1.7	3.1	1.1	.5	3.2	68.9

THIRD TECHNOLOGY DEVELOPMENT PROJECT
(LOAN 2913-KO)

Table 8.2: USE OF BANK RESOURCES: MISSIONS

Stage of Project	Month/ Year	No. of Persons	Days in Field	Specialization Represented	Major Issues
Through Appraisal /a /b /c /b	12/85 11/86 05/87 07/87	4 2 2 2	NA 14 4 8	Technology Development and Financial Specialists	Appraisal and supervision of subloans, and privatization
Appraisal through Board Approval	-	-	-	-	-
Board Approval through Effectiveness	04/88	1	NA	Technology Development	Risk-sharing financial instruments
Supervision					
Mission I	03/89	1	5	Financial Specialist	Risk-sharing financial instruments
Mission II	12/90	1	5		Financial profitability and privatization
Mission III /d	12/91	1	4	Senior Financial Specialist	Future role of KTDC and its conversion into KTB as a private specialized financial intermediary
Mission IV /d	04/92	2	14	Senior Financial and Banking Specialists	
Mission V /d	10/92	3	14		

/a Mission combined with a discussion regarding a Second Electronics Project.

/b Mission combined with the Supervision of (First) and Second Technology Development Projects.

/c Excluding the first week that was used to help organize and run the UNDP-financed seminar on project appraisal techniques for the KTB staff.

/d Mission combined with the preparation/preappraisal of the proposed Financial Intermediation Project.